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ABSTRACT

Designed to assist bilingual teachers in providing a coordinated program of studies for students in the Connecticut Migratory Children's Program and others whose native language is Spanish, this bilingual-bicultural mathematics curriculum guide for second grade is one of a series for pre-school through fifth grade. The overall focus is on Puerto Rican history and culture, placing development of skills within the context of the experience and social identity of the child. A sequential approach is utilized. The guide contains eight units, related to those in the other second grade guides: myself (numeration), my school (addition), my family (subtraction), my home (multiplication/division), my community (fractions), transportation (time and money), communication (measurement), animals (geometry). Appropriate skills are presented in each unit; those in the geometry unit are: recognizing that the shortest distance between two points is a straight line; identifying a line segment and drawing line segments between named points; identifying a triangle, rectangle and circle; identifying a square and distinguishing it from a rectangle. Key vocabulary words are listed with each skill, as are activities to motivate students to learn the skills. The illustrations provided can be copied for instructional use. Much of the material is given in Spanish and English. (MH)

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CONNECTICUT STATE
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1977

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MATHEMATICS for GRADE 2

bilingual - bicultural curriculum

INTRODUCTION

Mathematics Bilingual-Bicultural Curriculum for Grade Two is one of a series of curriculum guides. When the series has been completed, it is conceived that there will be guides for pre-school through grade five in the areas of social studies, language arts, science, and mathematics. The purpose of these guides is to assist bilingual teachers in their efforts to provide a coordinated program of studies for students in the Connecticut Migratory Children's Program and for any other students whose native language is Spanish. In utilizing this curriculum guide, it is important to be aware of the philosophical and instructional principles which were central to its development.

First, although the guides contain skills which are commonly considered appropriate to specific grade levels, it has never been assumed that there is a single norm of achievement for all children at a given grade level. There should always be an effort to discover the skill level at which a child is functioning, to choose materials from curriculum guides at that skill level, and to move on to more difficult materials only when the child is ready. This is especially true for students who have had their schooling interrupted and disrupted by a migratory experience. The purpose of suggesting skills at given grade levels is simply to provide a logical sequence of skill development. Teachers must be sensitive to differences between children.

Second, although all the skills introduced in this curriculum series are for the most part sequential, this aspect is particularly critical in the mathematics and science curricula. It is, therefore, important for the teacher to make certain that the students have mastered the already introduced scientific/mathematic skills before proceeding on to a new concept. Whenever appropriate, the activities within each skill progress from the simple to the complex, from the concrete to the abstract.

Third, the focus of the curriculum for pre-school and kindergarten children is on developmental concepts. In the guides for grades one through three, the focus is on social studies concepts. The other curriculum areas - language arts, science, mathematics - are related to the social studies content and key off, insofar as possible or practical, the themes dealt with in the social studies units. The entire series of curriculum guides use Puerto Rican history and culture as a point of departure, progressing from the familiar to the unknown. Placing the development of language arts, science and mathematics within the context of the experience and social identity of the child contributes to the child's building of a positive image of himself, thus enhancing his motivation to learn.

Fourth, the instructional program should make every attempt not to confuse children through the simultaneous use of two languages. Nevertheless, a major effort should be made to provide common points of reference for instruction in Spanish and English. Instructional methodology should be designed so as to have the English learning program "keyed" to the teaching that takes place in Spanish. The concepts and vocabulary taught in English should, whenever possible, be closely related to concepts and vocabulary which have already been learned in Spanish. In this way, new materials which are introduced in English will have solid conceptual structures which have already been established in the learner's native language.

The drawings which illustrate the arithmetic activities may be photocopied and given to the students as introductory or practice worksheets. In addition, at the end of each unit there are mastery tests which have been prepared specifically for the teacher's use. These tests are coordinated with the instructional content of each unit, and should be given only when all of the skills in each particular unit have been taught. By using the tests in this way, the teacher can determine which skills each individual student has mastered, and which skills need further work, before progressing to the next unit.

CREDITS

This curriculum guide has been prepared by the New Haven Migratory Children's Program for the Connecticut Migratory Children's Program and the Connecticut State Department of Education. The preparation of this guide has been accomplished by a variety of people, including the following:

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MATHEMATICS
BILINGUAL-BICULTURAL CURRICULUM
FOR GRADE TWO

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UNIT I: MYSELF - *Numeration*

SKILL A:	To form a set which is equivalent to a given set of ten members or less and write simple numerals for the cardinal numbers zero through twenty.
SKILL B:	To place numbers on the number line in the correct order and supply missing numbers on the number line or in a sequence of consecutive numbers.
SKILL C:	To use the ordinal numbers first through twentieth.
SKILL D:	To identify the lesser or greater of two numbers.

SKILL A: To form a set which is equivalent to a given set of ten members or less and write simple numerals for the cardinal numbers zero through twenty.

VOCABULARY:
zero
sets
one-to-one

FIRST ACTIVITY FOR SKILL A

Review the idea of one-to-one matching by drawing two equivalent sets of coquies on the chalkboard and asking a student to match the sets one-to-one by drawing matching lines to pair the members. Then you may draw a set of coquies with three or four members on the chalkboard and ask each student to draw on a piece of paper a set which will match one-to-one with the set you have drawn. One student may draw his set on the chalkboard and prove that the sets do match one-to-one. Ask how many members are in each set. You may wish to repeat this activity several times using sets with not more than ten members until the students conclude that sets which match one-to-one have the same number of members.

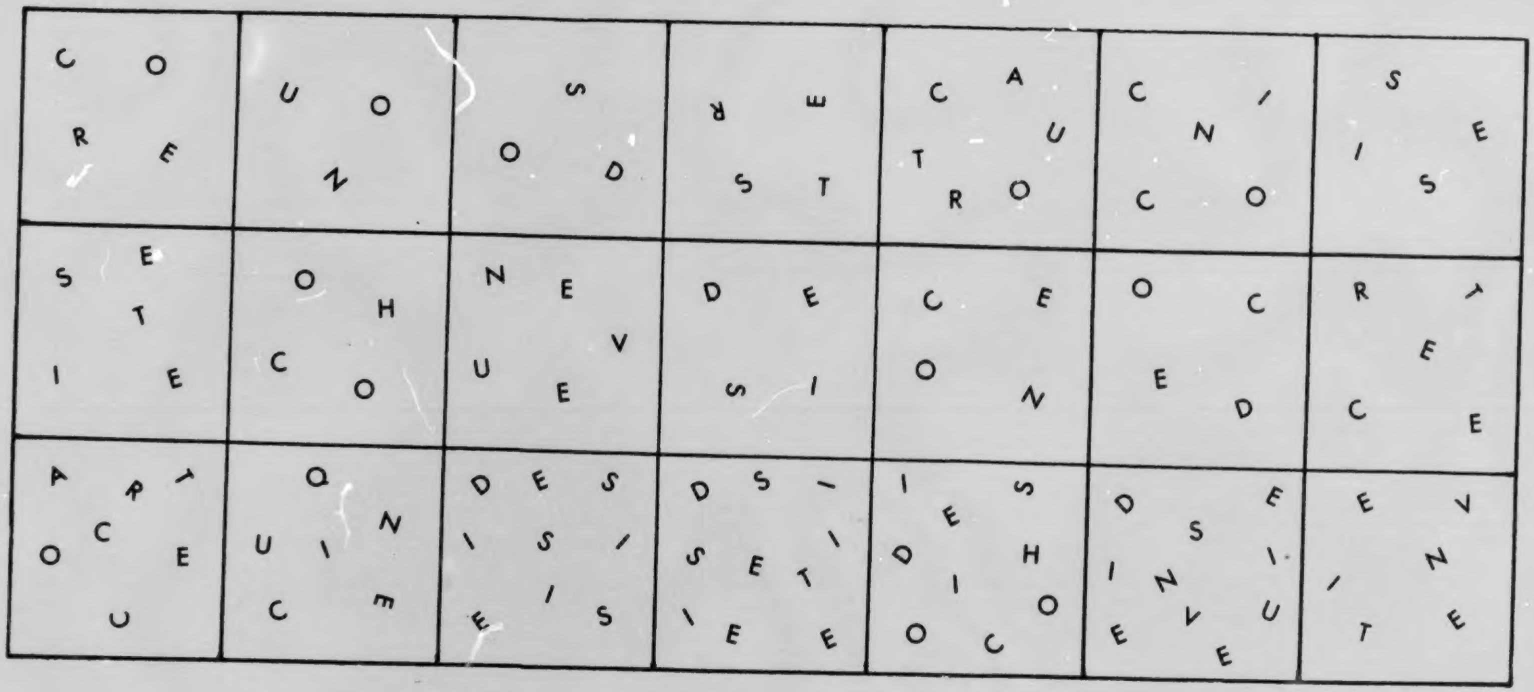
SECOND ACTIVITY FOR SKILL A

Review the numerals zero through twenty using both the digit symbols and the word symbols. The teacher could write the word syllables and digit symbols on the board all scrambled and have the children take turns drawing lines between the words and digits that match.

THIRD ACTIVITY FOR SKILL A	Have the students work in pairs with set cards of tropical fruits. Example: Mangoes, pineapples, guavas, etc. One student selects a set card and the other student must draw a set (of mangoes for example) which will match one to one with the original set. The first student checks to see if there are the same number of members in each set. Then the students trade roles.
FOURTH ACTIVITY FOR SKILL A	Have the students play the game, Animal Legs. One student draws an animal with one to ten legs. A second student places a star (or check mark) on each leg and then names both the number of legs and number of stars. If he is correct, he may draw the next animal.
FIFTH ACTIVITY FOR SKILL A	Have one student stand in front of a small group and bounce a ball any number of times from one to twenty while the students in the group listen. The student who bounced the ball then asks a member of the group to tell how many times the ball bounced. If the group member answers correctly, he takes the next turn to bounce the ball. If not, the student bounces the ball again and calls on another student.

SIXTH ACTIVITY FOR SKILL A

Provide the students with the word names of the numbers zero to twenty with the letters scrambled on tagboard paper 3 x 7 inches. Show the class the cards and have them write the word name and digit represented on the card for each one.



C O R E	U O N	S O D	R E S T	C A U T R O	C I N C O	S E I S
E S T I E	O H C O	N E V U E	D E S I	C E O N	O C E D	R T E C E
A R T C O E U	Q N U I C E	D E S I S I E I S	D S I S E I T I E E	I S E D H I O O C	D E S I I N U V E E	E V N I T E

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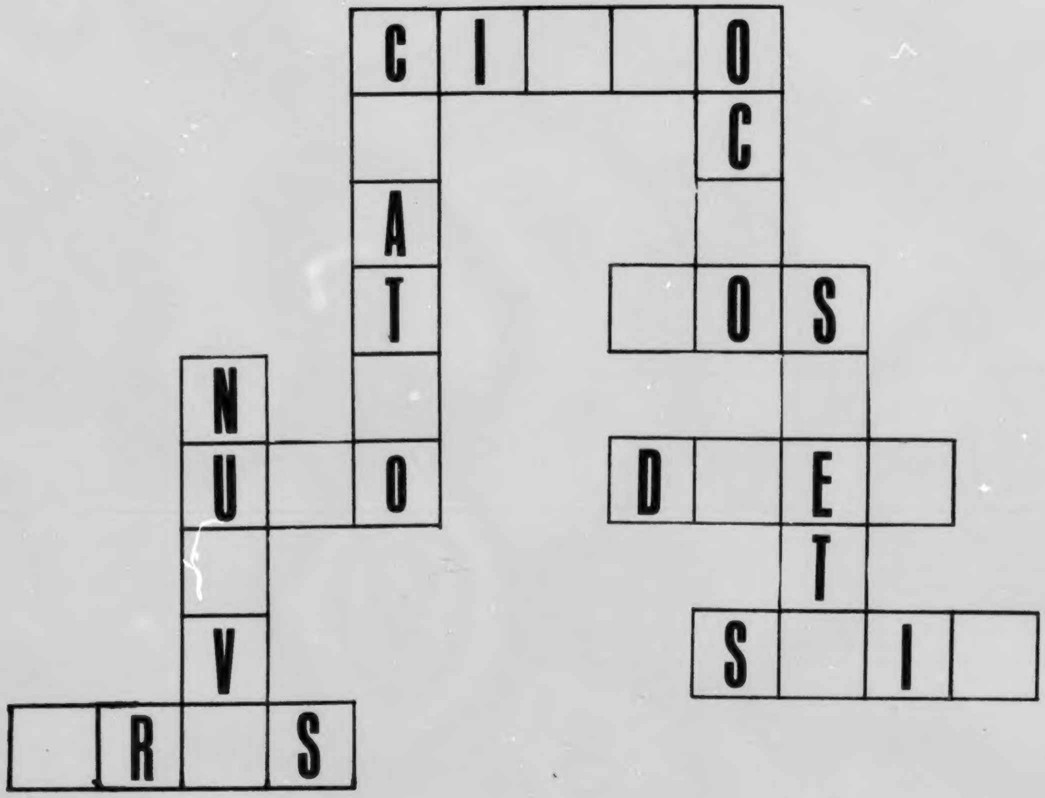
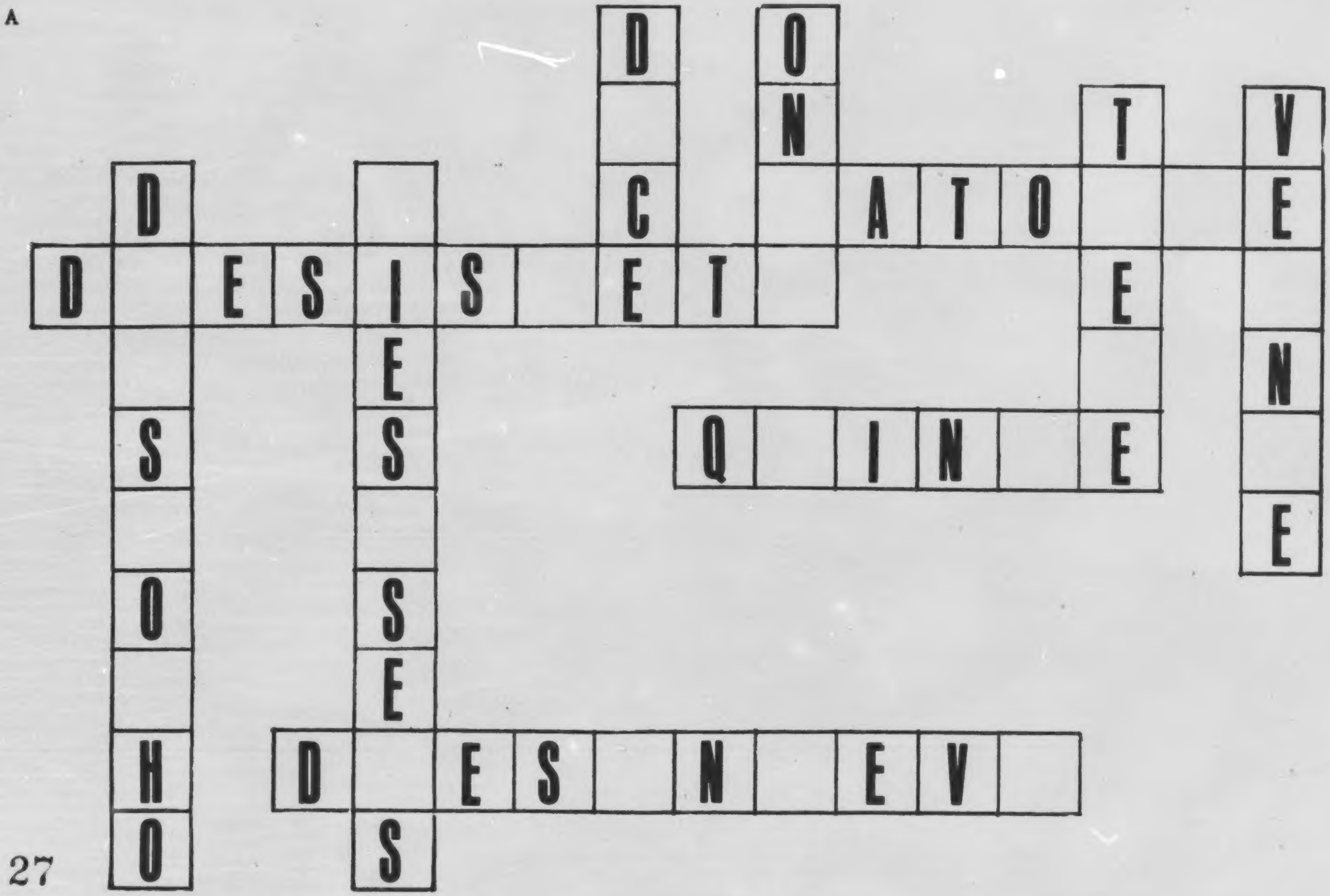
SEVENTH ACTIVITY FOR SKILL A Have the students complete the following puzzle, using each of the word names zero through ten.


C I O
C
A
T
O S
N
U O
D E
T
V
S I
R S

EIGHTH ACTIVITY FOR SKILL A

Have the students complete the following puzzle, using each of the word names eleven through twenty.


D O
N T V
D C A T O E
D E S I S E T E
E N
S S Q I N E
E
O S
E
H D E S N E V
O S

SKILL B: To place numbers on the number line in the correct order and supply missing numbers on the number line or in a sequence of consecutive numbers.

VOCABULARY:
between
left
number line
right

FIRST ACTIVITY FOR SKILL B

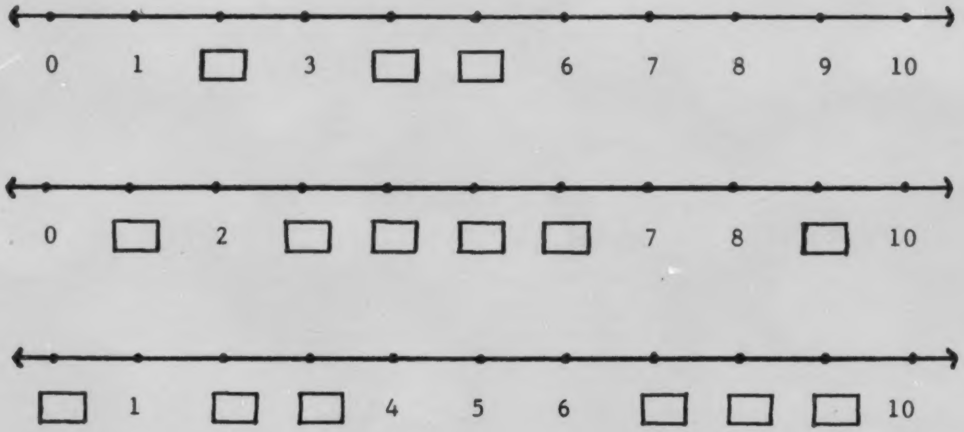
Draw a number line with eleven points on the board. Label the first three points 0,1,2, then ask: "Si estos puntos los llamo 0,1,2, ¿cómo llamo a este punto?" The students should see that the answer is 3. The students may continue in this way until all the points are numbered. They should be asked why they think that a line like this is called a number line. Encourage all reasonable responses.

SECOND ACTIVITY FOR SKILL B

Make sure that the students understand the concepts of left, right, and between. Arrange some students in a line side by side and then rearrange them by asking one student to move to the right, or to stand between two other specified students. To avoid confusing any students who are watching from their seats, be sure that everyone is facing the same direction. In other words, if you ask a student to move to his left and he is facing you, his leftward movement will be to your right. When you are sure the students know left from right you may apply these concepts to the number line by asking questions like, "¿Si empezamos en el número 3 y nos movemos para la izquierda, ¿a qué número llegamos?" o "¿Si empezamos en el número 3 y nos movemos para la derecha ¿a qué número llegamos?" Ask the students to identify the direction you have to move in order to get from 5 to 7, from 10 to 4, from 4 to 2, and so on. Continue activities of this sort until the students understand the idea of numbers to the left and right.

THIRD ACTIVITY FOR SKILL B

Prepare this activity on the chalkboard and have the students fill in the missing numerals.


0
1
3
6
7
8
9
10
0
2
7
8
10
1
4
5
6
10

0 ___ 2

2 ___ 4

3 ___ 5

4 ___ 6

6 ___ 8

7 ___ 9

1 ___ 3

5 ___ 7

8 ___ 10

0 ___ ___ 3

3 ___ ___ 6

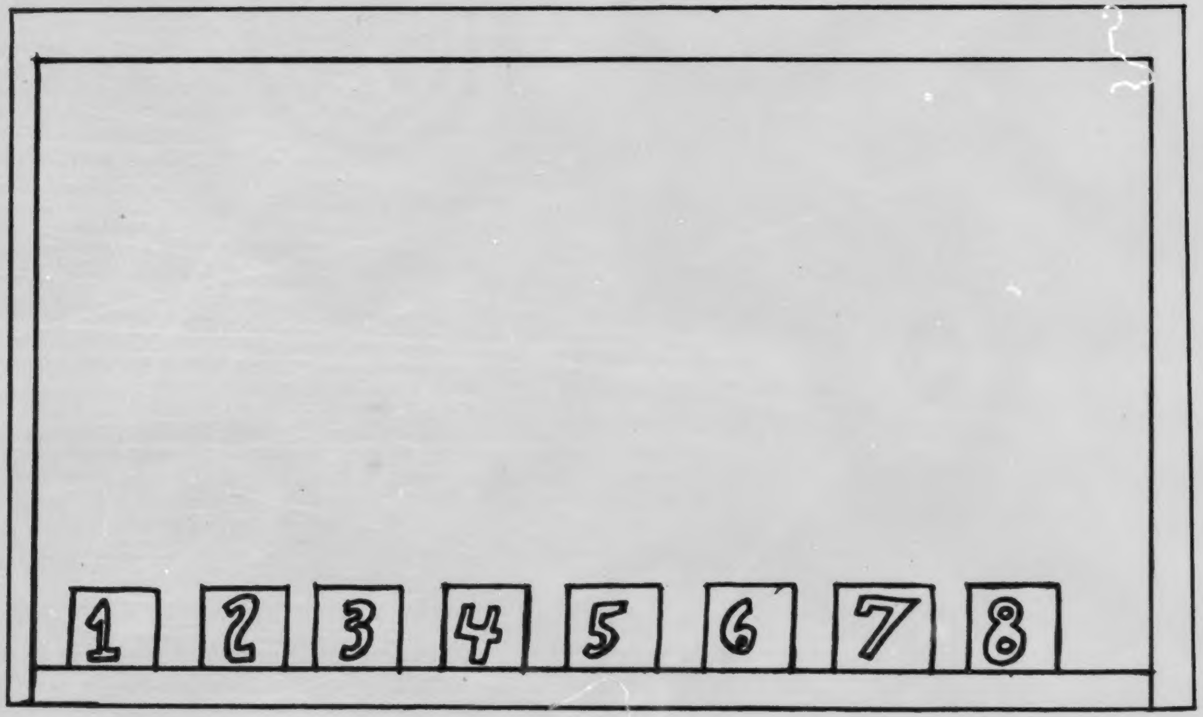
5 ___ ___ 8

FOURTH ACTIVITY FOR SKILL B

Place a number line from 1 to 10 on the floor with masking tape. Have the students walk to the left or right to illustrate less than or greater than relationships. Be sure all the students face the same direction so no confusion arises. One student stands on 7 and walks left to 5 another student writes 5,6,7 on the chalkboard and takes the place of the first student at the 7 point.

FIFTH ACTIVITY FOR SKILL B

Have a student in the group arrange a set of numeral cards (0-9) in increasing order on the chalk ledge. After the cards have been properly placed remove several numbers. Ask several students to replace the numbers in the proper order.



SKILL C: To use the ordinal numbers first through twentieth.

VOCABULARY: ordinal numbers

FIRST ACTIVITY FOR SKILL C

To introduce the ordinal numbers, have ten children stand in line. Ask questions such as: ¿Quién es primero, segundo, tercero?" Discuss with the class some of the things they do before coming to school in the morning. On the chalkboard place the ordinal numbers primero, segundo, tercero, cuarto, quinto. Have the students draw in the activities they do before coming to school.

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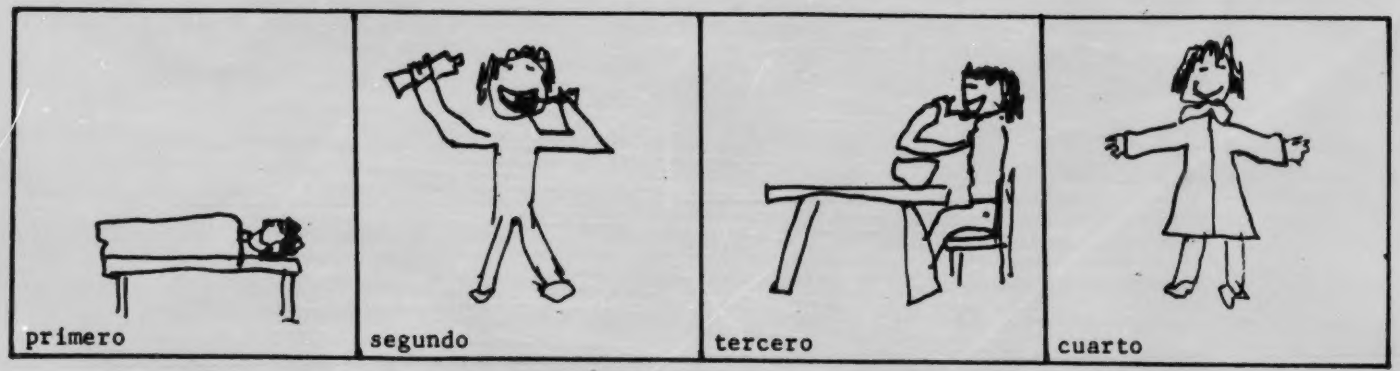

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SECOND ACTIVITY FOR SKILL C	Write the months of the year on the chalkboard and then ask which students have birthdays in January, which in February and which in the other months. Have the students write their names on the chalkboard under the name of the month of their birth. When the chart has been completed ask the children questions such as: "¿Quíenes nacieron en el primer mes, ¿quiénes en el segundo?"- and so on.
THIRD ACTIVITY FOR SKILL C	Place several objects (pencil, crayons, chalk, eraser) on your desk. Ask the students to point to the third object, the fifth object, the first object. Give a student a turn at naming the ordinal numbers for each object.
FOURTH ACTIVITY FOR SKILL C	Ask the student to fold a large piece of manila into fourths, eighths, and sixteenths. Place the names of the ordinal numbers on the chalk ledge and have them write these on their papers. Have the students cut out their numbers to keep as a handy reference.

SKILL D: To identify the lesser or greater of two numers.

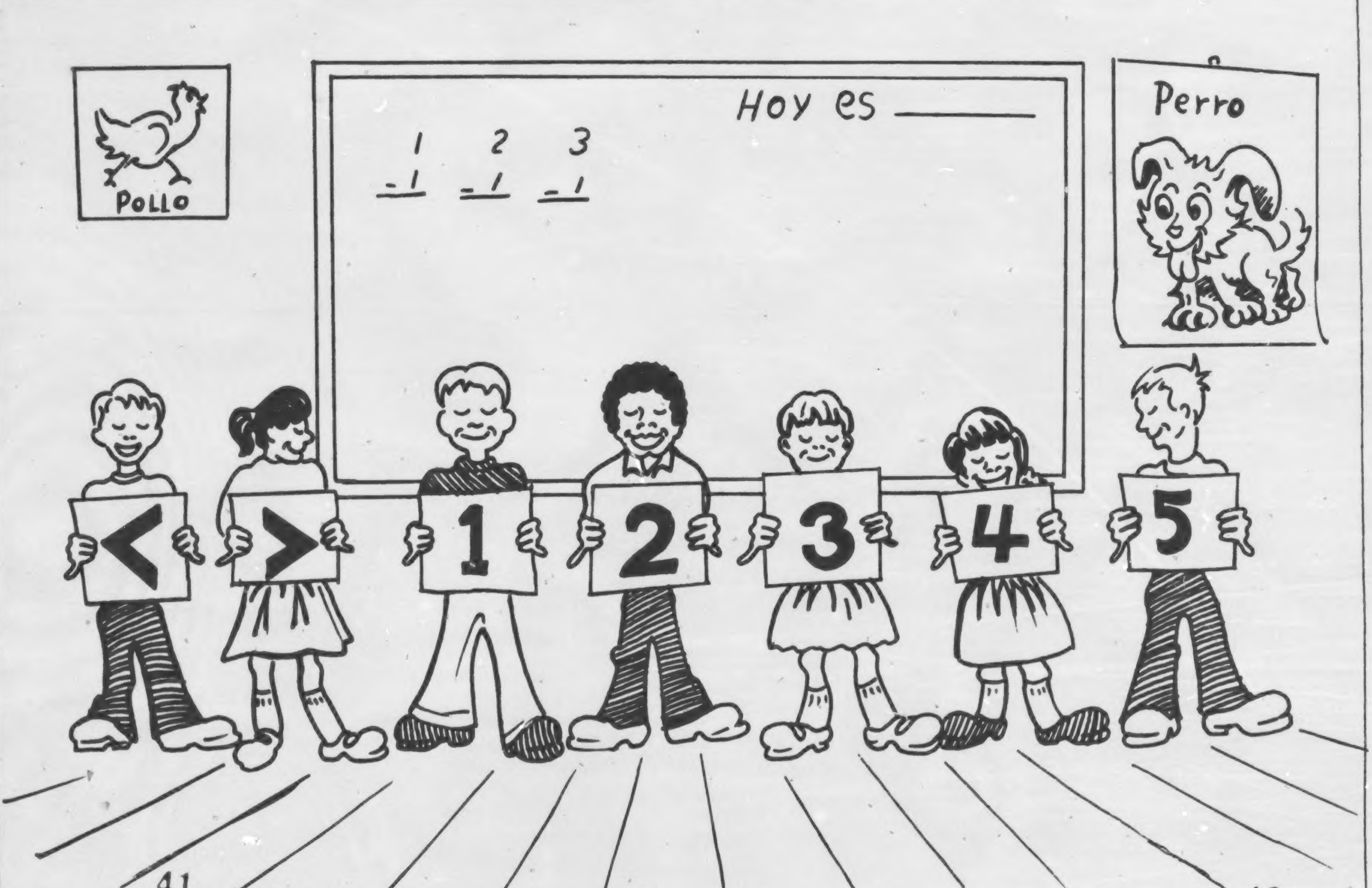
VOCABULARY:
greater than
less than

FIRST ACTIVITY FOR SKILL D

Arrange sets of objects, such as pencils, chalk, paper clips and balls on a table. Hold up two objects in one hand and three in the other and ask which set has fewer and which set has more. Ask which set has the greater number of objects. Use other pairs of sets.

SECOND ACTIVITY FOR SKILL D

Select a group of five students to be the numbers 1 to 5. Select two students to be the signs, "greater than" and "less than."Ask two numbers to step forward. For example, 1 and 3. Then ask the two students who are > and < to tell which number is greater and which number is less and then have the student with the appropriate sign stand between the numbers. Select other numbers and continue this activity until the children understand the greater than and less than concept.


Pollo
Hoy es ______
1 2 3
-1 -1 -1
Perro
<
>
1
2
3
4
5

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THIRD ACTIVITY FOR SKILL D	Ask a student to name a set with 10 or fewer members such as the set of girls with long hair. Ask other students to name sets which have greater or lesser numbers than the first set named such as the set of boys with black hair or the set of students wearing sneakers and the set of students wearing shoes.
FOURTH ACTIVITY FOR SKILL D	Make two large cards one having the $\boxed{<}$ sign and the other the $\boxed{>}$ sign. Give the cards to two students and have other students form two groups or sets. Be sure that the groups do not have the same number of students. The students with the cards will decide which sign is to be used to compare the sets of students and the student with the appropriate sign stands between the two sets of students. Another student may write the corresponding inequality on the chalk board. Help the students notice that the wide end of the sign always opens toward the greater number, or that the arrow always points to the lesser number.
FIFTH ACTIVITY FOR SKILL D	Estoy Pensando - Have one student say: "Estoy pensando en un número que es más que cinco pero menos que siete." The student who can name the correct number gives the next example. To make the game more challenging, examples with two answers may be used. For example: the leader can say he is thinking of two numbers greater than three but less than six and ask the other students to name the two numbers.

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Word Problems For The Myself Unit Involving Numeration.

FIRST PROBLEM Make a list on the chalkboard of different sets of things related to each child and have each child copy this list and then write the numeral next to each item on the list which is appropriate for them. A list could be as follows.

El conjunto de cumpleaños que tú has tenido ______________.

El conjunto de niños viviendo en tú casa _____________.

El conjunto de ojos que tú tienes ______________.

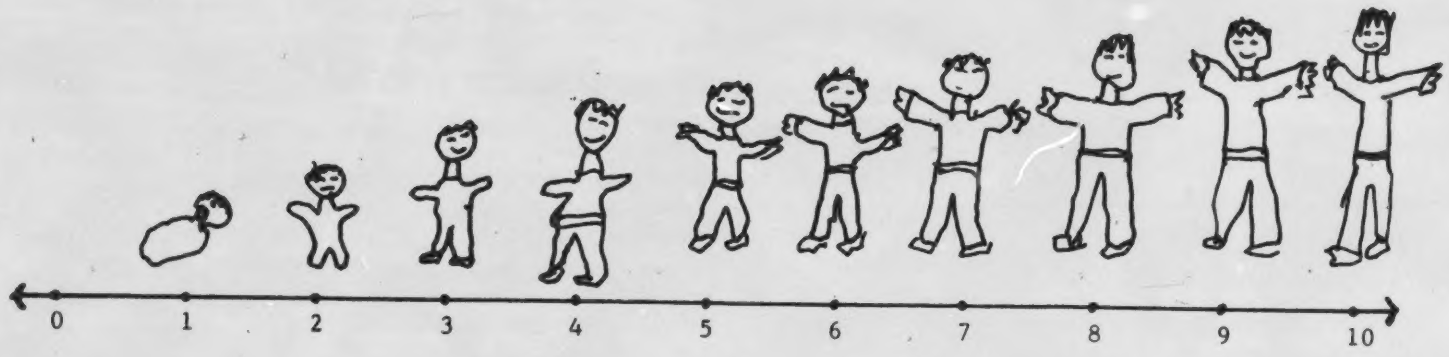
El conjunto de ojos azules que tú tienes ______________.

El conjunto de estados en el cual tú has vivido ______________.

El conjunto de orejas que tú tienes ______________.

El conjunto de pelos en tú cabeza ______________.

SECOND PROBLEM Have the children make a large number line on a large piece of paper. The number line should have points from zero to ten which are spread out so that pictures can be drawn above each point. Above each point on the number line have the children draw a picture of themselves as they think they might have looked at each age corresponding to the number on the number line. They can imagine how they look at ages above what they are now.



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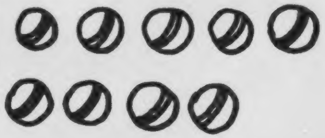
THIRD PROBLEM Write on the chalk board a list of things that each child might have done during the current day. Have each child pick out those things they have actually done so far during the day and make a list of these in the order that they did them. The children should then be asked to write the words for the ordinal numbers next to each appropriate activity. An example list might be:

Me levanté.
Me lavé la cara.
Me vestí.
Comí desayuno.
Ayudé a mi mamá.
Dije, buenos días.
Caminé a la escuela.
Jugue con mis amigos.
Tuve una clase de matemática.

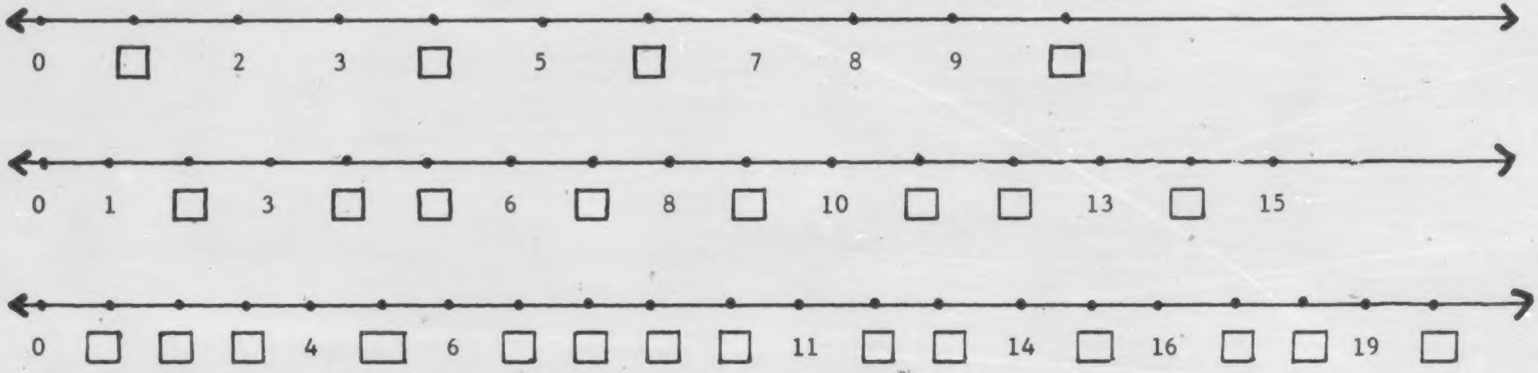
FOURTH PROBLEM	Have each child find one other student who has lived in Connecticut longer than they have and another student who has lived in Connecticut a shorter time. This should be done in months. The children should then be asked to write the numbers for themselves and the other two students next to each other and place the appropriate "greater than" or "less than" sign between the numbers.

Mastery Test Items For Unit I:
MYSELF - NUMERATION

Have the children fill in this chart in which they first write the name for each number listed and then draw a set of objects corresponding to the number.

9	nueve	
4		
11		
6		
18		

The children can fill in the missing numerals on these three number lines.


0 ☐ 2 3 ☐ 5 ☐ 7 8 9 ☐
0 1 ☐ 3 ☐ ☐ 6 ☐ 8 ☐ 10 ☐ ☐ 13 ☐ 15
0 ☐ ☐ ☐ 4 ☐ 6 ☐ ☐ ☐ ☐ 11 ☐ ☐ 14 ☐ 16 ☐ ☐ 19 ☐

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For each of the pairs of numbers have the children place the appropriate "greater than" or "less than" sign between the numbers.

5 > 2

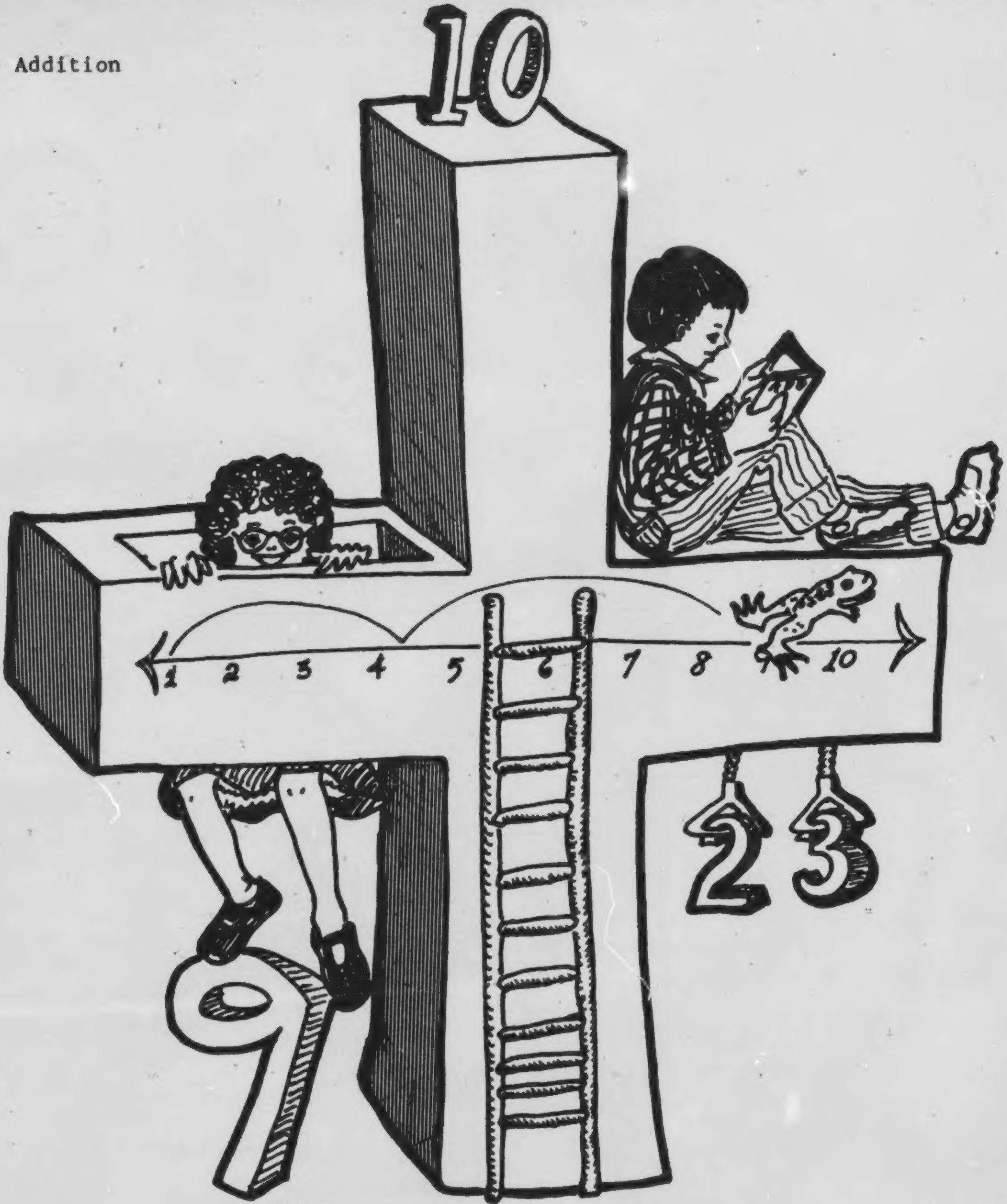
9 11

16 9

14 17

18 8

UNIT II: MY SCHOOL - Addition


10
1
2
3
4
5
6
7
8
10
9
2
3

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UNIT II: MY SCHOOL ~ Addition

SKILL A: To identify the number of elements in each of two sets and their combined set.

SKILL B: To identify different ways of describing a set.

SKILL C: To write the sum and addends of two numbers up to ten.

SKILL D: To add on a number line by drawing the individual hops first and then the larger jumps.

SKILL E: To work with and complete an addition table.

SKILL F: To understand and work with two-digit numerals.

SKILL G: To count by tens and to combine sets of tens to make a new set.

SKILL H: To distinguish when a digit is in the hundreds, tens or ones place.

SKILL I: To write an addend or sum to make a true statement (sums to 19).

SKILL J: To name the sum of three addends and to recognize that parentheses indicate which two numbers are added first.

SKILL K: To re-group in addition.

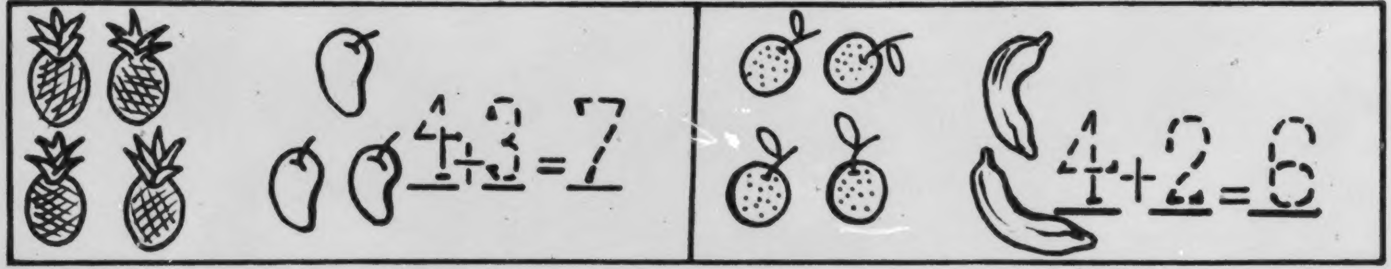
SKILL A: To identify the number of elements in each of two sets and their combined set.

VOCABULARY:

- add
- addition
- addition combination
- sum
- set
- plus
- combined set
- equation

FIRST ACTIVITY FOR SKILL A

Introduce the basic idea behind addition by having the children work with sets of objects.



The children will observe that in the first two examples a certain number of objects is made up of two smaller numbers. They count the total number of objects and write the appropriate numeral. They will also note that they are describing the same set in two different ways. Example: 7 is the same as 4 + 3.

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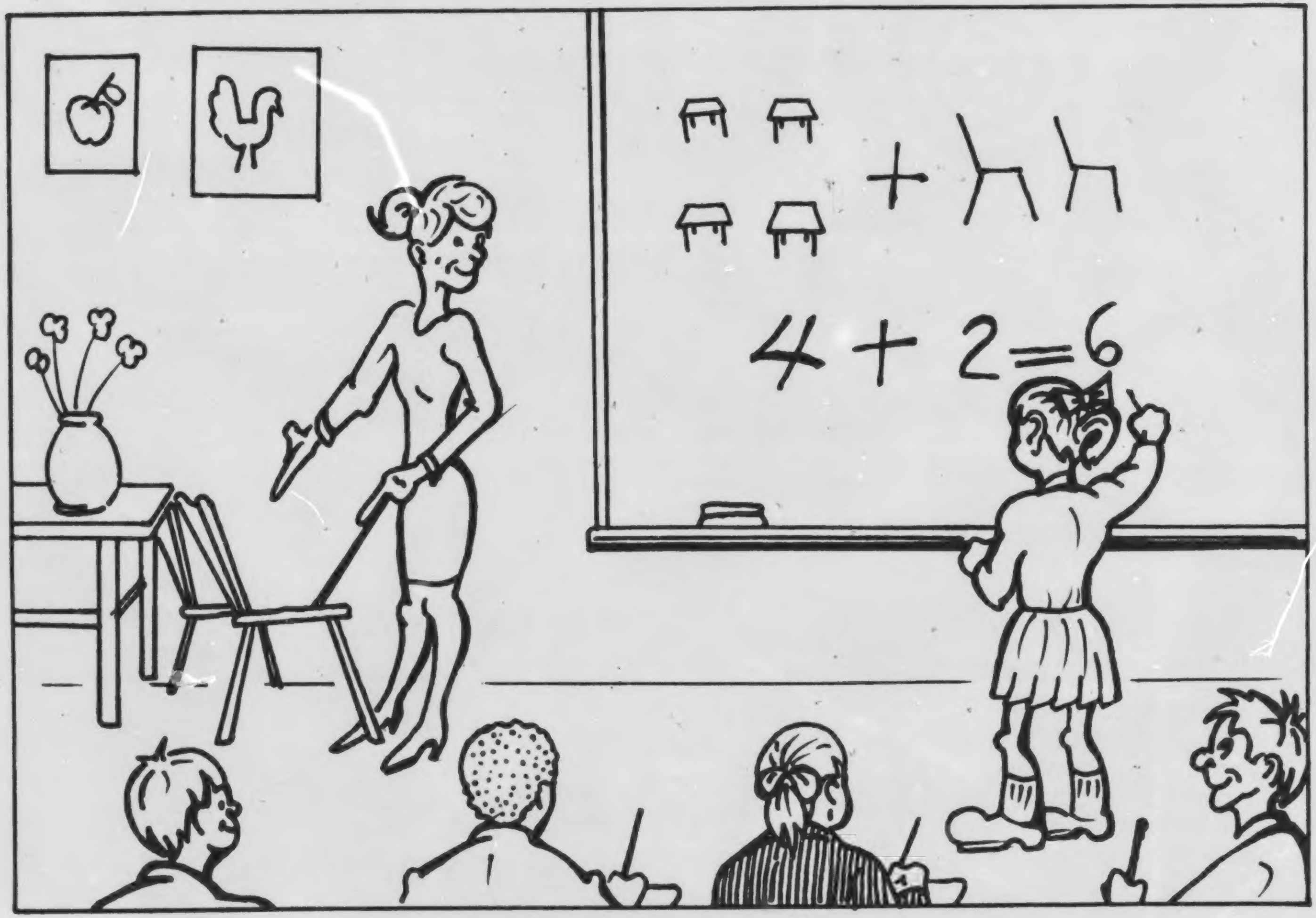
SECOND ACTIVITY FOR SKILL A

Have the children draw a picture showing how many windows and doors, chairs and tables, etc., are in their classroom. The children can write the mathematical equations under their pictures.



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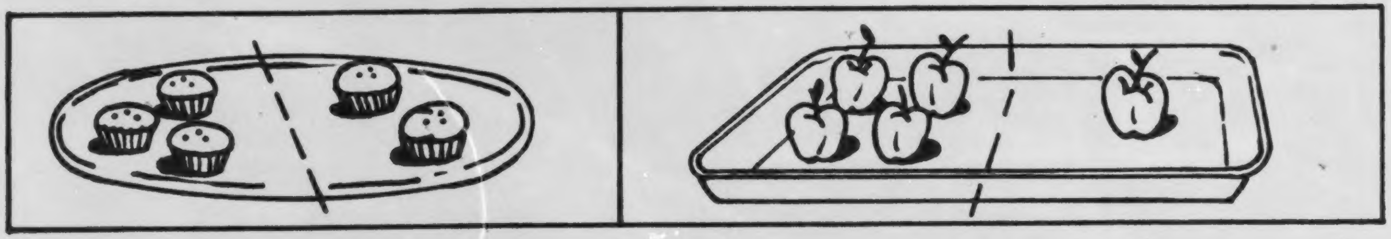
VOCABULARY: counter

SKILL B: To identify different ways of describing a set.

FIRST ACTIVITY FOR SKILL B

Each child should be provided with a piece of construction paper or a fruit tray. Draw a line down the center.



Provide each child with various kinds of counters (bottle caps, blocks, chips, beans, shells, etc.). Ask each child to take five counters and to show different names for five using their trays. Call on the children for responses and then record the equations on the chalkboard. For example:

$\underline{3} + \underline{2} = \underline{5}$

$\underline{4} + \underline{1} = \underline{5}$

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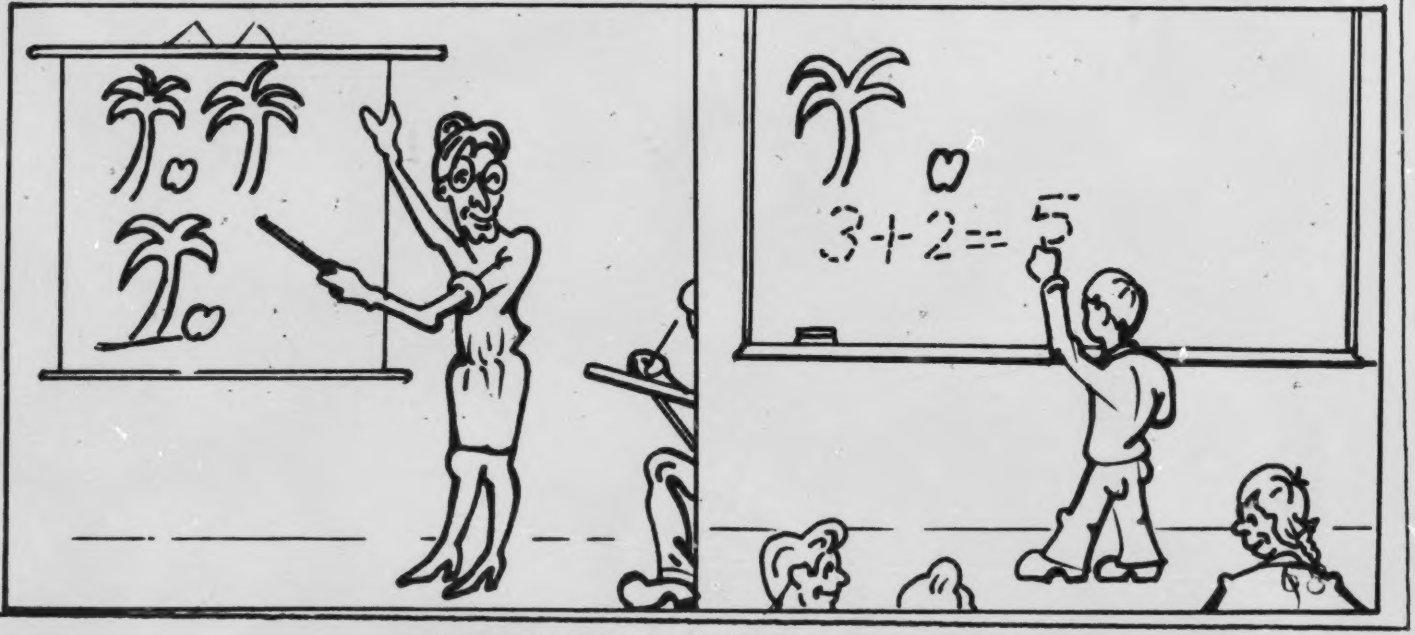
SKILL C: To write the sum and addends of two numbers up to ten.

VOCABULARY:

sum
addend
number sentence
one-digit numeral

FIRST ACTIVITY FOR SKILL C

Show the children a picture which has different numbers of many kinds of objects in it. Write equations on the chalkboard which require the children to fill in addends and sums which correspond to the numbers of objects in sets and the number of objects in two sets or combination sets.



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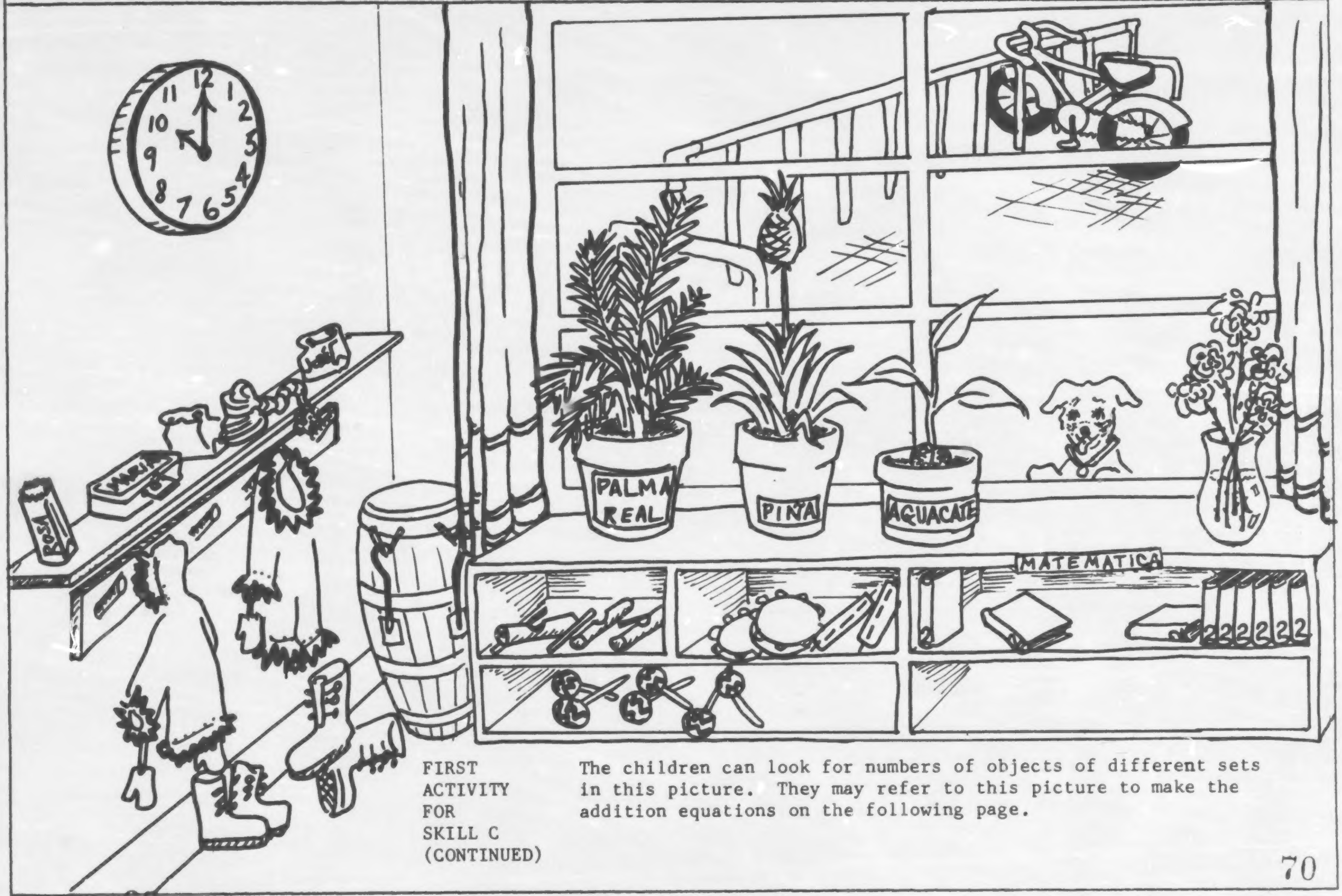
12
1
2
3
4
5
6
7
8
9
10
11
Rosa
PALMA REAL
PIÑA
AGUACATE
MATEMATICA
2 2 2 2 2 2

FIRST
ACTIVITY
FOR
SKILL C
(CONTINUED)

The children can look for numbers of objects of different sets in this picture. They may refer to this picture to make the addition equations on the following page.

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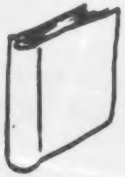
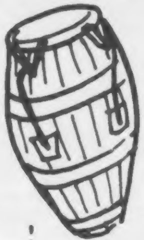
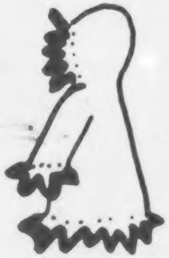
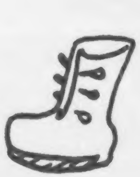
FIRST ACTIVITY FOR SKILL C (CONTINUED)



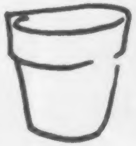


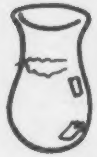
9 + 1 = 10



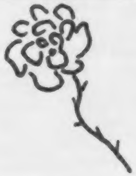


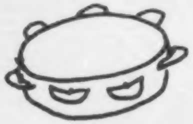
_____ + _____ = _____



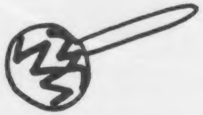


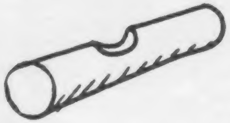
_____ + _____ = _____



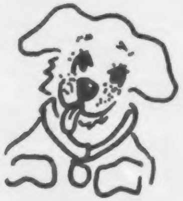


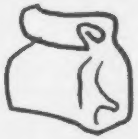
_____ + _____ = _____





_____ + _____ = _____





_____ + _____ = _____

SECOND ACTIVITY FOR SKILL C

Ask the children to name all the purple objects in the classroom and all the blue objects. Record the equation for the combination of the two on the chalk board if the sum is less than ten.

Have the children find all the round things on the walls, all the square things. Record the equation if the sum is less than ten.

THIRD ACTIVITY FOR SKILL C

Have the children fill in the missing information on the following kinds of equations.

$$\begin{array}{r}0\\+3\\\hline\end{array}\qquad\begin{array}{r}5\\+5\\\hline\end{array}\qquad\begin{array}{r}6\\+3\\\hline\end{array}\qquad\begin{array}{r}4\\+4\\\hline\end{array}$$

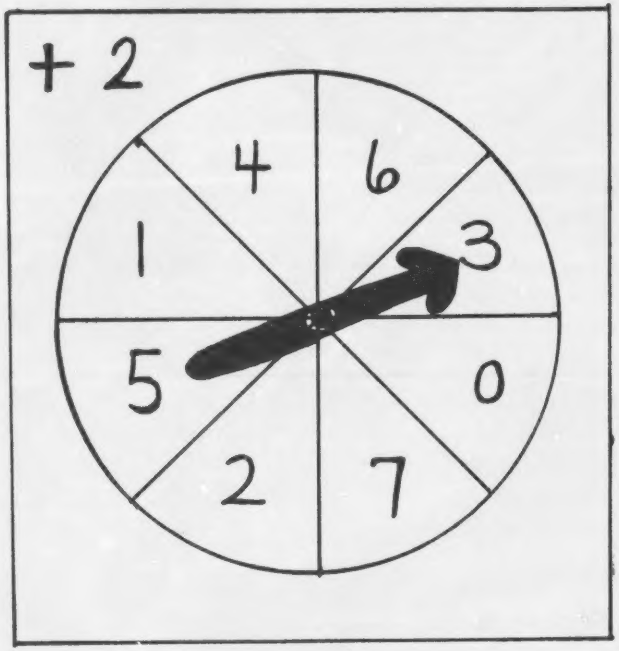
$4 + 2 = \boxed{}$ $\qquad 7 + \boxed{} = 8$

$\boxed{} + 6 = 8$ $\qquad 5 + 2 = \boxed{}$

FOURTH
ACTIVITY
FOR
SKILL C

SPIN A NUMBER SENTENCE.

Make a large cardboard circle. Put a spinner in the center. Use a paper fastener to hold the spinner. Write the operational sign and numeral to be plussed in the upper left hand corner. Spin and write the number sentence for where the arrow stops.



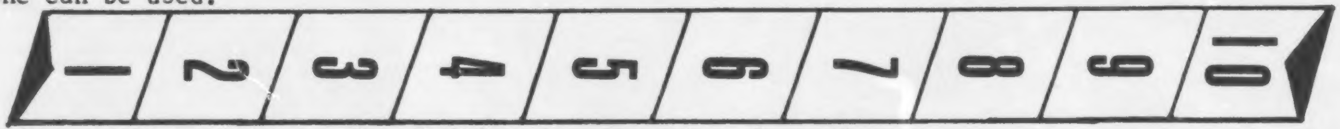
3 + 2 = 5

SKILL D: To add on a number line by drawing the individual hops first and then the larger jumps.

VOCABULARY:
number line
hop
jump

FIRST ACTIVITY FOR SKILL D

A floor model number line can be used first. Children will get the "feel" with their whole body of moving from one number to the next. This can be made with masking tape or a commercial one can be used.



Write a math equation on the chalkboard. Example: 3 + 5 = ____

Have a child make the first three hops, ask,"¿Cuántos espacios hay hasta el brinco de tres?" Be sure to point out the **3** on the chalkboard. Then, the five single hops are made, ask,"¿Cuántos espacios hay hasta el brinco de 5?"

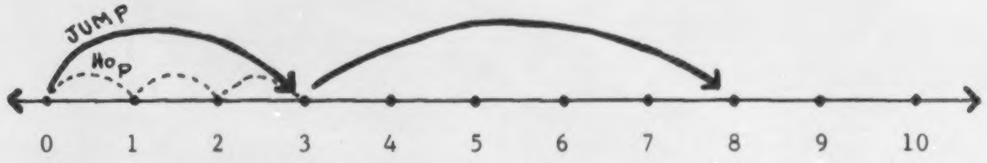
3 + 5 = ____

78

SECOND ACTIVITY FOR SKILL D

Have the children make their own number lines. With a ruler have them draw a horizontal line with arrowheads at both ends across their paper. With their rulers have them mark off equal spaces from 0 to 10, they then write the numerals.

3 + 5 = 8



Give the children an equation such as, 3 + 5 = ____. Tell the children to start at 0 and mark off 3 single hops to get to 3, then have them go back to 0 and make one single jump to 3. Have the children write the numeral 3 above the long single jump. Have them do the same for the second part of the equation.

SKILL E: To work with and complete an addition table.

VOCABULARY:

- addition table
- column
- row

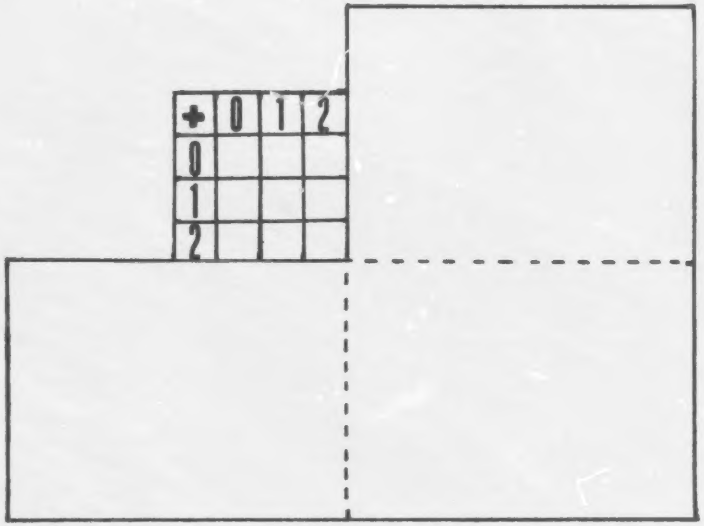
FIRST ACTIVITY FOR SKILL E

For children who may not have used a math table, point out the row and column of addends and show them how to locate the box for the sum. As an extra help give each child a sheet to make a marker. Have the children fold the paper (8" x 11") along both margins so that is folded in quarters. They can cut one of the quarters from the paper so that the cut out space can be used as a marker in both directions. The marker can be placed over the addition table so the children can keep their place.

Have the children complete the addition table.

FIRST ACTIVITY FOR SKILL E

+	0	1	2	3	4	5	6	7	8	9	10
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											



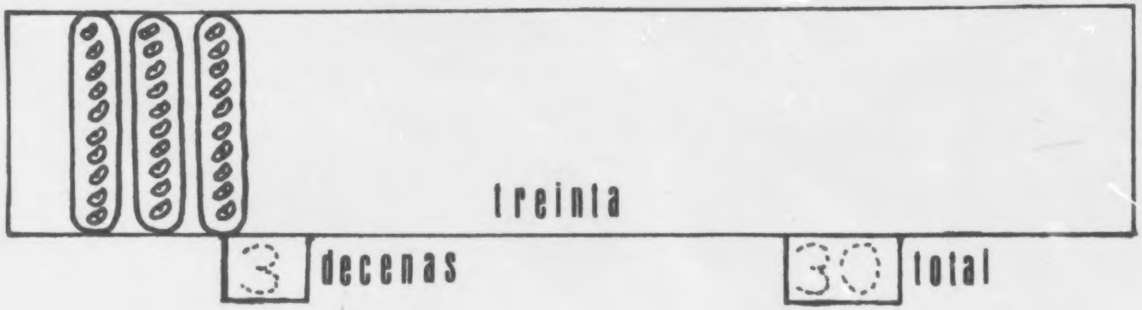
SKILL F: To understand and work with two-digit numerals.

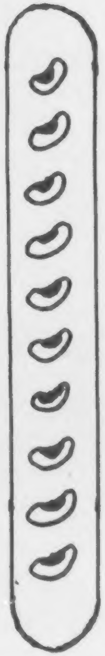
VOCABULARY: two-digit numerals
tens

FIRST ACTIVITY FOR SKILL F

The children can make "10 sticks." Use strips of cardboard or tongue depressors. Glue ten beans on each stick or piece of cardboard. Use single beans to represent ones.

Give the children work sheets on which they use the bean sticks to represent the sums of the beans up to 100. On these work sheets, the children should have the opportunity to indicate the number of tens used, and the total number of beans used.

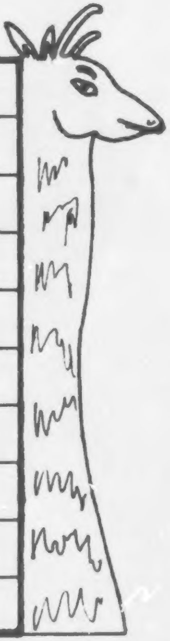




SECOND ACTIVITY FOR SKILL F

Have the children fill in the tens on this chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	28	29	
31	32	33	34	35	36	37	38	39	
41	42	43	44	45	46	47	48	49	
51	52	53	54	55	56	57	58	59	
61	62	63	64	65	66	67	68	69	
71	72	73	74	75	76	77	78	79	
81	82	83	84	85	86	87	88	89	
91	92	93	94	95	96	97	98	99	



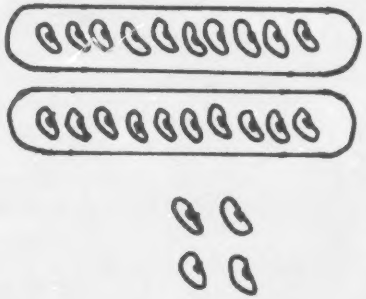
THIRD ACTIVITY FOR SKILL F

Have the children count by tens.

10 20 ______ ______ ______ ______ ______ ______ ______ ______

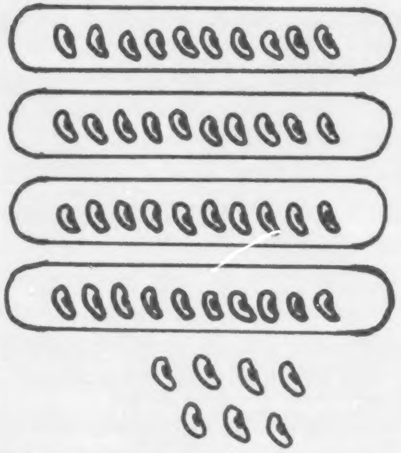
FOURTH ACTIVITY FOR SKILL F

Show the children examples of combinations of the "bean sticks" and extra single beans. Then make statements on the chalkboard which the children can fill in to indicate the number of tens, the number of ones and the total number to represent the combination of the two.



conjunto de diez 2 y 4 unidades

24



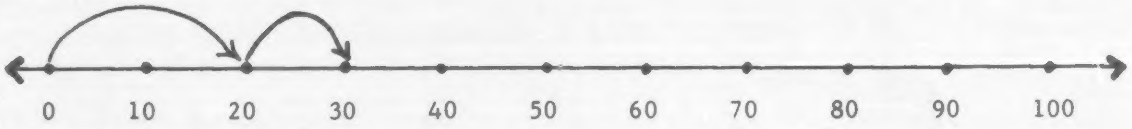
conjunto de diez 4 y 7 unidades

47

SKILL G: To count by tens and to combine sets of tens to make a new set.

FIRST ACTIVITY FOR SKILL G

Draw a number line on the chalkboard and mark it by tens from 0 to 100. The children can now use the tens number line to help them complete addition sentences.



Put the following number sentences on the chalkboard and have the children complete them using the tens number line.

20 + 10 = 30

30 + 60 = ____

40 + 50 = ____

10 + 70 = ____

20 + 20 = ____

80 + 10 = ____

20 + 70 = ____

30 + 30 = ____

90 + 10 = ____

60 + 30 = ____

SKILL H: To distinguish when a digit is in the hundreds, tens or ones place.

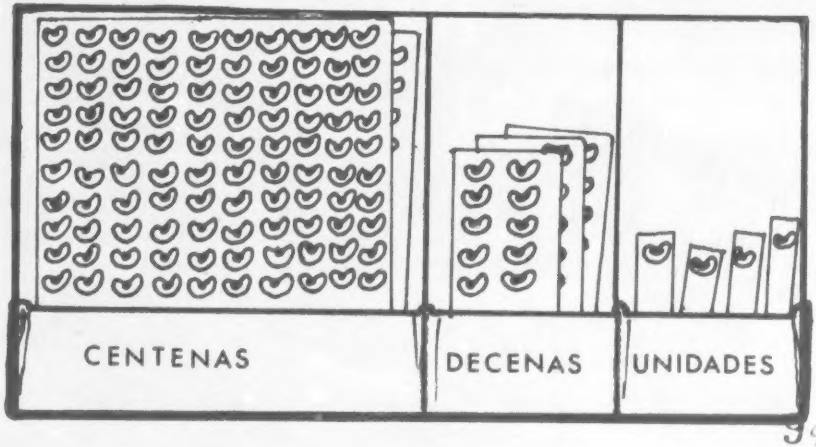
VOCABULARY:
three-digit numeral
hundreds
pocket chart

FIRST ACTIVITY FOR SKILL H

Make a large pocket chart. Make hundred cards, ten cards and cards with single ones. Explain to the children that to find place value, we read from right to left. The first place is the ones place, the second place is the tens place and the third place is the hundreds place.

We can expand numerals to express the total value of each digit in a three digit numeral. Example:

385 = 300 + 80 + 5



FIRST ACTIVITY FOR SKILL H (CONTINUED)

The teacher places 2 one hundred cards in the hundreds place, 3 ten cards in the tens place and 4 one cards in the ones place in the pocket chart. The teacher then asks the children, "how many ones, tens, hundreds." The answers are then recorded on the chalkboard chart.

centenas	decenas	unidades
2	3	4

$$200 + 30 + 4 = \underline{234}$$

SECOND ACTIVITY FOR SKILL H

The children can fill in the following chart.

	centenas	decenas	unidades	
600 + 30 + 2	6	3	2	632
200 + 7	2	0	7	
500 + 80 + 6				
800 + 40 + 3				
400 + 9				

SKILL I: To write an addend or sum to make a true statement (sums to 19).

VOCABULARY: true statement

FIRST ACTIVITY FOR SKILL I

Materials needed:
1 hanger
21 clothespins

Use a hanger and 21 clothespins. With a magic marker put the numerals from 1 to 19 on the clothespins. Make a plus sign on one clothespin and an equal sign on another. Put the clothespin with the plus sign toward the left side of the hanger and the one with the equal sign toward the right with spaces left on both sides of these pins to place numbers. Put the following mathematics equations on the chalkboard and call on one child to place the clothespins on the hanger to show the first math equation. The child will need to figure out which number is missing and complete the equation.

$1 + 3 = \boxed{}$

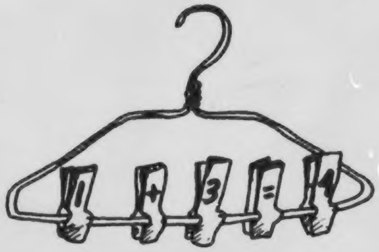
$8 + \boxed{} = 13$

$14 + 3 = \boxed{}$

$\boxed{} + 12 = 15$

$\begin{array}{r} 9 \\ +4 \\ \hline \end{array}$ $\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$

$\begin{array}{r} 8 \\ +9 \\ \hline \end{array}$ $\begin{array}{r} 5 \\ +9 \\ \hline \end{array}$



SECOND
ACTIVITY
FOR
SKILL I

Math Puzzles. Draw these charts on the chalkboard. Lead the children to see that no matter which way they add, down or across, the sum will be the same for the last box.

2	5	7
3	7	10
5	12	17

4	9	13
5	1	6
9	10	19

3	4	7
2	1	3
5	5	10

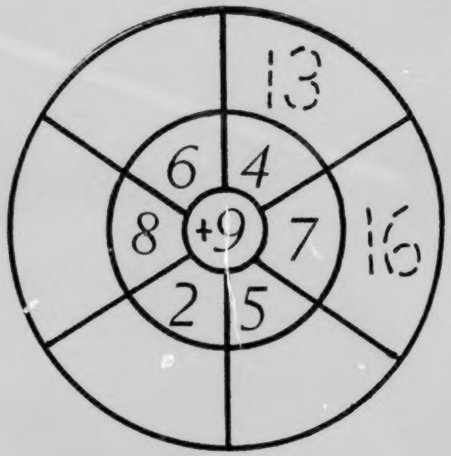
101

4	3	7
8	3	11
12	6	18

102

THIRD ACTIVITY FOR SKILL I

Prepare a paper for each child with several math wheels. Have them complete the number facts.



FOURTH ACTIVITY FOR SKILL I

Have the children fill in the sums of an addition table, using two one-digit addends.

+	5	6	7	8	9
8	13	14			
9					
10					

SKILL J: To name the sum of three addends and to recognize that parentheses indicate which two numbers are added first.

VOCABULARY: parentheses

FIRST ACTIVITY FOR SKILL J

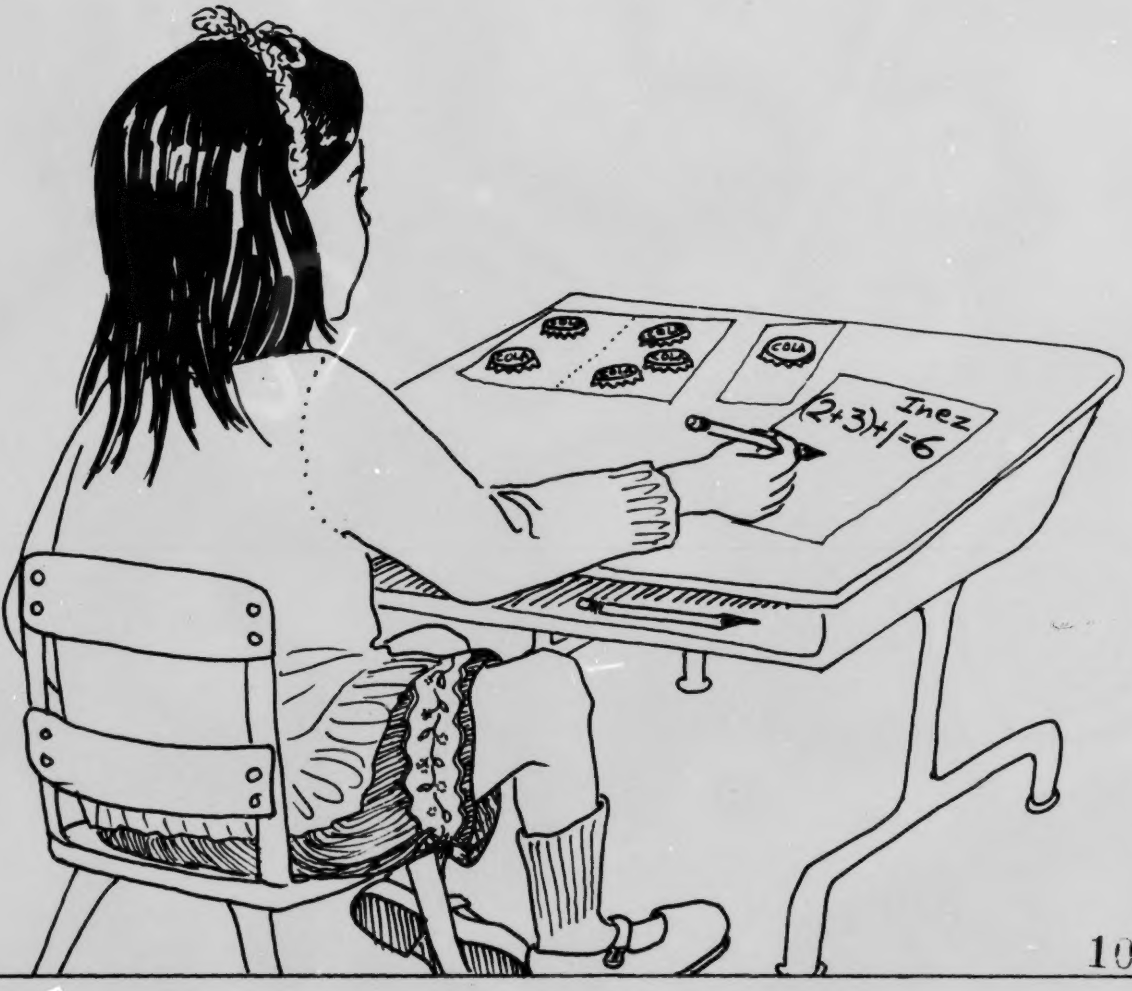
To add three numbers, we name the sum of two of the addends and then add this partial sum to the third addend. Example:

$$(2 + 3) + 1 = \boxed{}$$

$$5 \quad + 1 = \boxed{6}$$

Have the children place objects (bottle caps, nuts, shells, etc.) on their desk to form sets of two and three. Then have them name the number of objects in the set formed when they join these sets. They may write the equation 2 + 3 = 5. Have them join a set of one to this set and write the equation 5 + 1 = 6. Have them check that the numbers they added were 2, 3 and 1, and the sum is 6.

FIRST ACTIVITY FOR SKILL J


COLA
COLA
COLA
COLA
COLA
COLA
Inez
(2+3)+1=6

SECOND ACTIVITY FOR SKILL J

Have the children solve the following problems having three addends by using bottle caps (or some other counters) to demonstrate the process.

(3 + 1) + 2 = ☐

(2 + 3) + 5 = ☐

(7 + 1) + 3 = ☐

(6 + 5) + 3 = ☐

(8 + 10) + 1 = ☐

(1 + 2) + 12 = ☐

(3 + 1) + 15 = ☐

4 + (5 + 8) = ☐

5 + (6 + 2) = ☐

7 + (4 + 2) = ☐

9 + (9 + 1) = ☐

3 + (5 + 4) = ☐

7 + (2 + 9) = ☐

7 + (3 + 4) = ☐

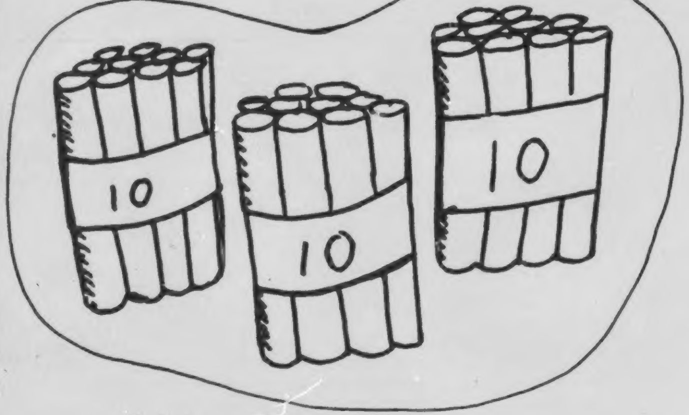
SKILL K: To re-group in addition.

VOCABULARY: re-group

FIRST ACTIVITY FOR SKILL K

Each child is given three bundles of sticks. Write the statement, "10 + 14" on the chalkboard. Ask the children to show the two addends with their bundles of sticks. They will discover that they must take their third bundle apart so that they can use the four ones. Now ask, "¿Cuántos paquetes de diez hay en el primer conjunto? ¿Cuántos palitos hay? ¿Cuántos paquetes de diez hay en el primer conjunto? ¿Cuántos palitos hay?"

Then add.



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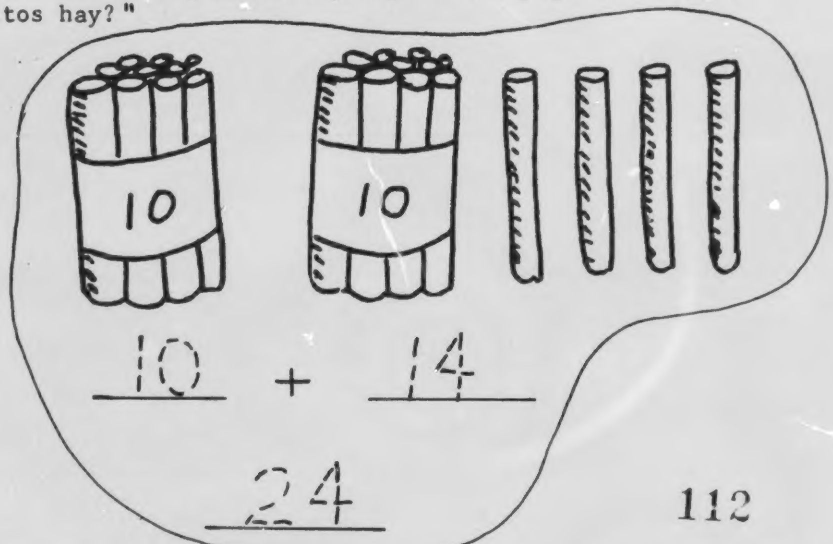

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SECOND
ACTIVITY
FOR
SKILL K

Have the children find the sum of two, two-digit addends with re-grouping.

$$\begin{array}{rrcr} & 30 & + & 6 \\ + & 40 & + & 7 \\ \hline & 70 & + & 13 \end{array} = \underline{\;83\;} \qquad \begin{array}{rrcr} & 50 & + & 4 \\ + & 20 & + & 8 \\ \hline & & & \end{array} = \underline{\qquad}$$

Word Problems For The School
Unit Involving Addition.

FIRST PROBLEM María tenía 8 lapices, Juan tenía 5 lapices y Ana tenia 7 lapices. ¿Cuántos lapices tenian ellos por todo? ________ lapices.

________ + ________ + ________ = ________

SECOND PROBLEM Juan tenia 6 libros. Su papá le dió 6 libros más. ¿Cuántos libros tenía Juan por todo? ________ libros.

________ + ________ = ________

THIRD PROBLEM Los niños en el salón del Señor Cruz hicieron 20 dibujos. Los niños en el salón de la señora Brown hicieron 30 dibujos. ¿Cuántos dibujos hicieron las dos clases?

________ + ________ = ________ dibujos

FOURTH PROBLEM En la clase de Ana hay 15 libros de matemática, 12 libros de lectura y 7 libros de música. ¿Cuántos libros tiene la clase de Ana?

________ + ________ + ________ = ________ libros

Mastery Test Items For Unit II:
ADDITION

Have the children complete the following problems.

$50 + 7 = \square$

$40 + 3 = \square$

$30 + 9 = \square$

$$\begin{array}{r} 30 \\ +60 \\ \hline \end{array} \qquad \begin{array}{r} 90 \\ +20 \\ \hline \end{array} \qquad \begin{array}{r} 40 \\ +20 \\ \hline \end{array}$$

$7 + 2 = \square$

$3 + \square = 5$

$\square + 4 = 7$

$(4 + 3) + 2 = \square$

$\_\_\_ + \_\_\_ = \square$

$6 + (2 + 1) = \square$

$\_\_\_ + \_\_\_ = \square$

$$\begin{array}{r} 3 \\ 5 \\ +2 \\ \hline \end{array}$$

68 = _____ decenas y _____ unidades

93 = _____ decenas y _____ unidades

77 = _____ decenas y _____ unidades

Have the children complete this table.

	centenas	decenas	unidades
952			
386			
247			

Have the children complete the following exercises.

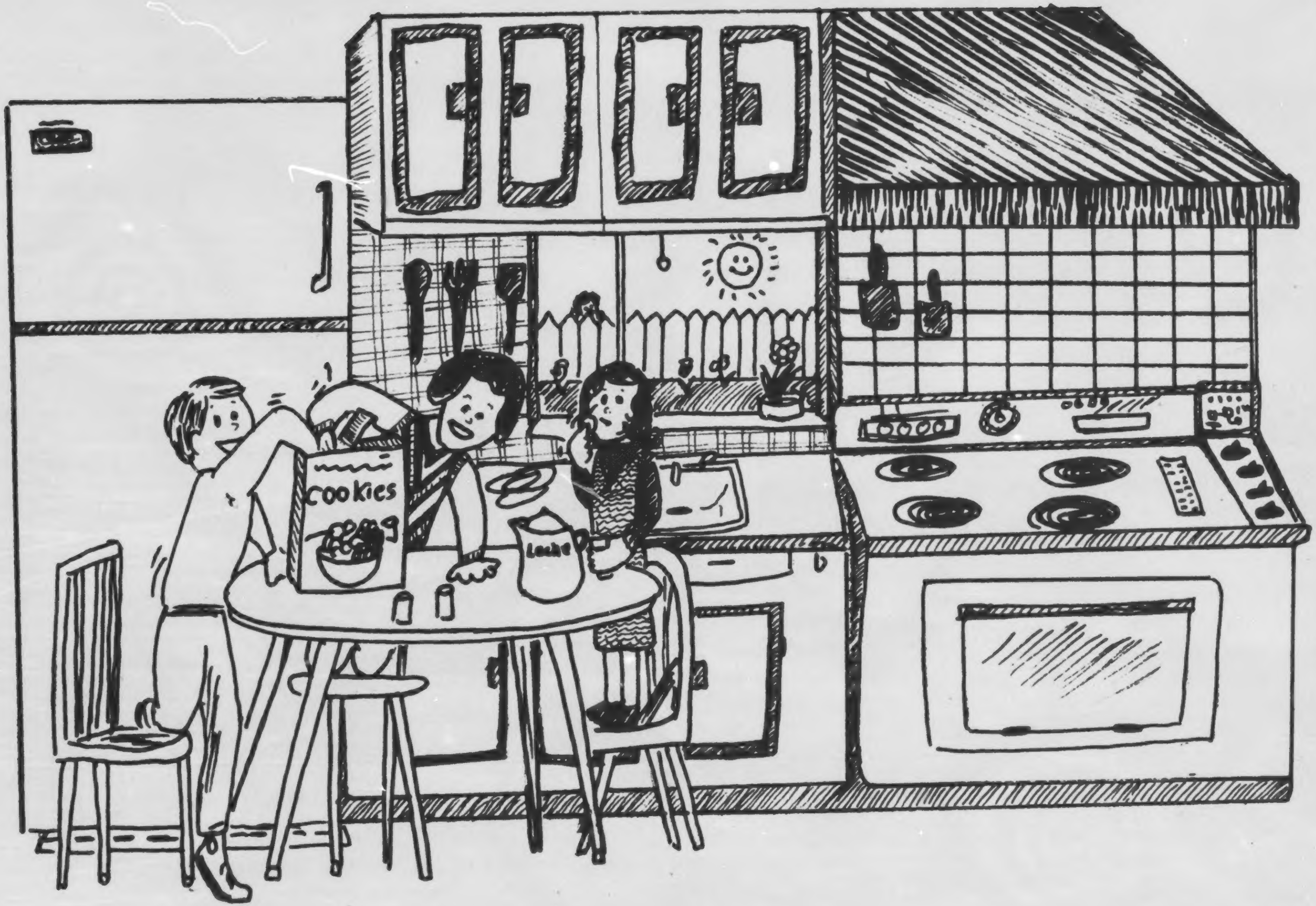
643 = 600 + ____ + ____

827 = ____ + ____ + ____

538 = ____ + ____ + ____

$$\begin{array}{r} 537 \\ +221 \\ \hline \end{array} \qquad \begin{array}{r} 452 \\ +346 \\ \hline \end{array} \qquad \begin{array}{r} 763 \\ +215 \\ \hline \end{array}$$

UNIT III: MY FAMILY - Subtraction


cookies
Leche

UNIT III: MY FAMILY ~ Subtraction

SKILL A: To review the concept of subtraction.

SKILL B: To find a point on the number line and illustrate a subtraction problem by a move to the left on the number line.

SKILL C: To use sets to illustrate comparative subtraction (differences) between numbers of objects in two sets.

SKILL D: To complete a take-away subtraction sentence for the number of objects in two sets.

SKILL E: To subtract one addend less than 10 from sums more than 10 and less than 20.

SKILL F: To subtract multiples of 20 from sums less than 100.

SKILL G: To subtract two-digit numbers between 10 and 100, without re-naming tens as ones in the sum.

SKILL H: To subtract a number less than 10 from a number greater than ten. (Using the process of re-naming tens as ones when necessary in the sum.)

SKILL I: To subtract a two-digit addend from a two-digit sum where the process of re-naming tens into ones is required.

SKILL A: To review the concept of subtraction.

VOCABULARY:
take away
remove
minus
subtract
subtraction
difference

FIRST ACTIVITY FOR SKILL A

Put three felt cut outs on the flannel board. These could be "pavas." Have a child join a set of cut outs to the set of three on the board. Have another child put the addition equation for this activity, 3 + 2 = 5, below the joined sets. A set of two was joined to a set of three to make a set of five. Read the equation aloud with the class 3 + 2 = 5. "Tres más dos es igual a cinco." Call one child to remove two pavas from the set. Place the related subtraction equation under the addition equation on the flannel board. Point out that this is a different kind of equation. Explain that when we take away an object from a set, we begin to think about a new operation: subtraction. Review the minus sign. Tell the children that the minus sign indicates that two is subtracted from five. Ask them to follow along with their eyes as you read the subtraction equation for them: "Cinco menos dos es igual a tres."Tell them that this is the sentence that belongs with what they saw happen on the flannel board when two objects were removed from a set of five. Say that the numeral 3 in this equation represents the difference between five and two.

SECOND ACTIVITY FOR SKILL A

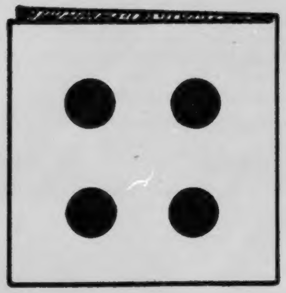
Place a set of four "cocos" on the flannel board, and have a child join a set of three "cocos" to the set of four. Ask another child to put the addition equation for this activity below the joined sets. Have the joining of the sets described and the equation read. Have another child take three objects from the set. Place the related subtraction equation below the addition equation. Have a child tell what numeral belongs in order to make the equation relate to the activity of removing three objects from a set of seven. Repeat this activity for other equations related to sums less than ten.

THIRD ACTIVITY FOR SKILL A Construct a table to show subtraction combinations which involve the numbers 1 through 9. This table can be kept on the chalkboard while the children are being introduced to subtraction so that they have it for reference.

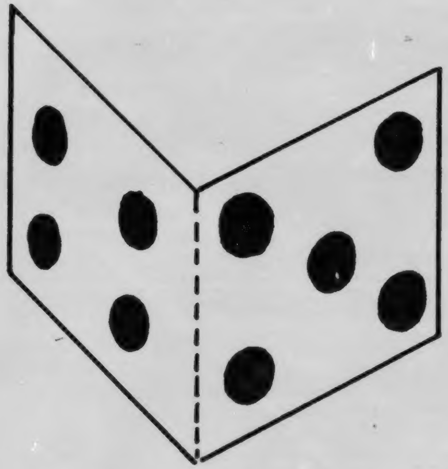
9	8	7	6	5	4	3	2	1
9-0	9-1	9-2	9-3	9-4	9-5	9-6	9-7	9-8
	8-0	8-1	8-2	8-3	8-4	8-5	8-6	8-7
		7-0	7-1	7-2	7-3	7-4	7-5	7-6
			6-0	6-1	6-2	6-3	6-4	6-5
				5-0	5-1	5-2	5-3	5-4
					4-0	4-1	4-2	4-3
						3-0	3-1	3-2
							2-0	2-1
								1-0

FOURTH ACTIVITY FOR SKILL A

Draw four dots on one side of a domino card and five dots on the other side. Fold the card in half so that only four of the dots are in view. Show to the class the side of the card with four dots. Have someone tell how many dots he sees. Unfold the card so that the children can see the five dots joined to the four dots. Have the card read from left to right, and the joining of the sets described. Ask someone to give the addition equation corresponding to this activity.

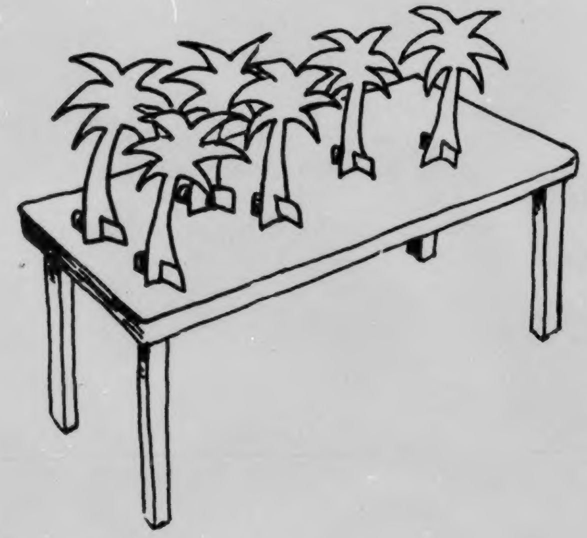


Now tell the children to watch as you fold the side of the card with five dots back out of sight. Ask how many dots were taken away and how many dots remain. Have the action described in terms of sets and have a child give the corresponding subtraction equation. Continue in this way in other combinations less than ten.



FIFTH ACTIVITY FOR SKILL A

Place six cardboard "palmas" on a table in front of the class. Have the children tell how many they see. Tell the class to close their eyes, and then remove two of the palmas. Ask the children to open their eyes and tell if there are more palmas than before or fewer. After the children say there are fewer palmas, ask them to tell how many fewer.



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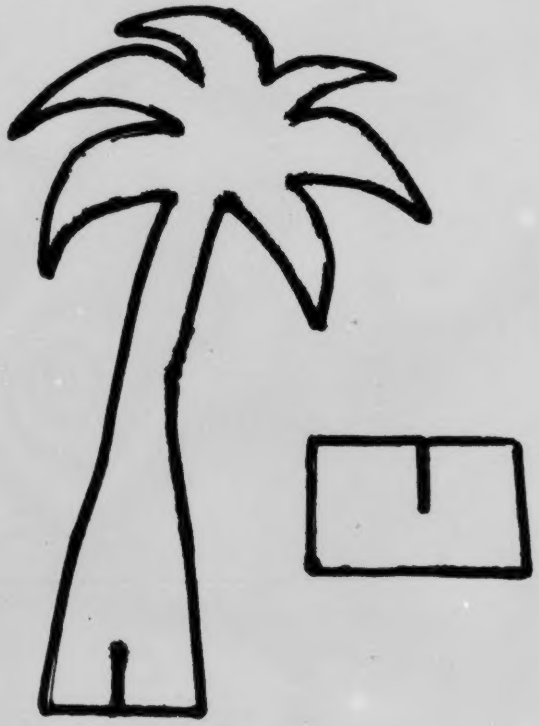

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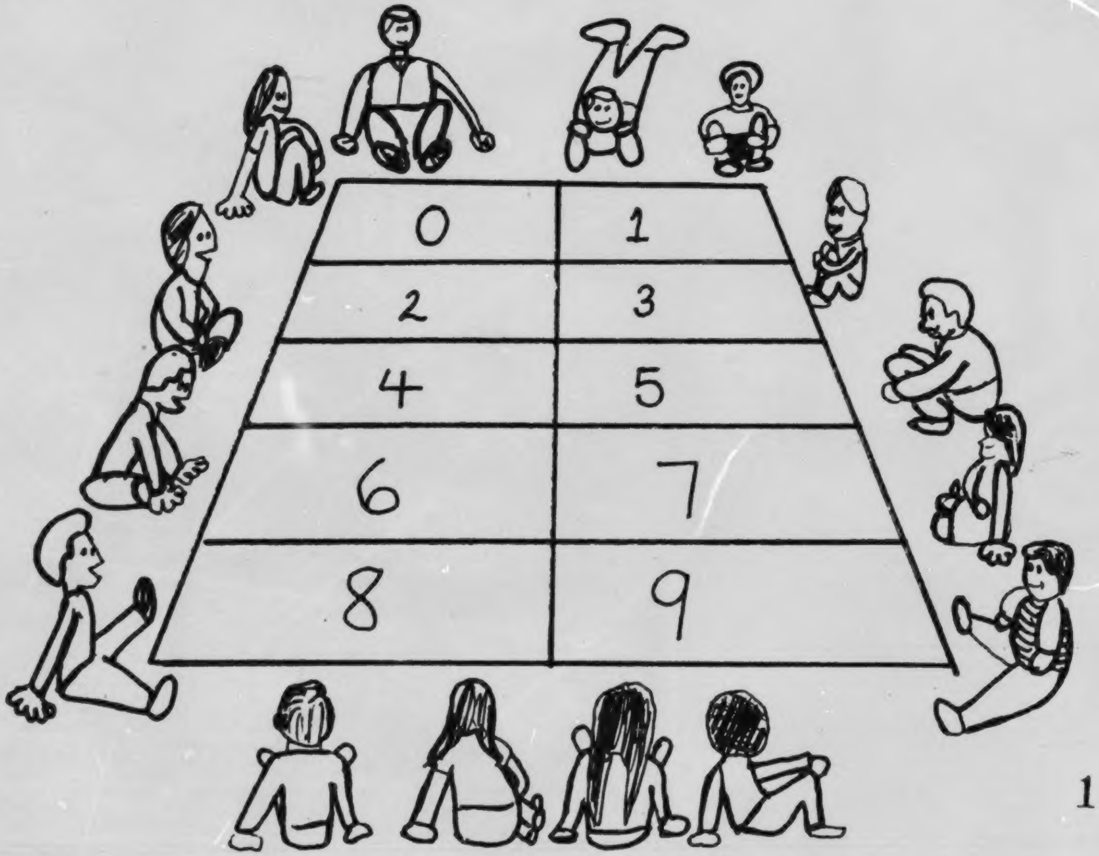
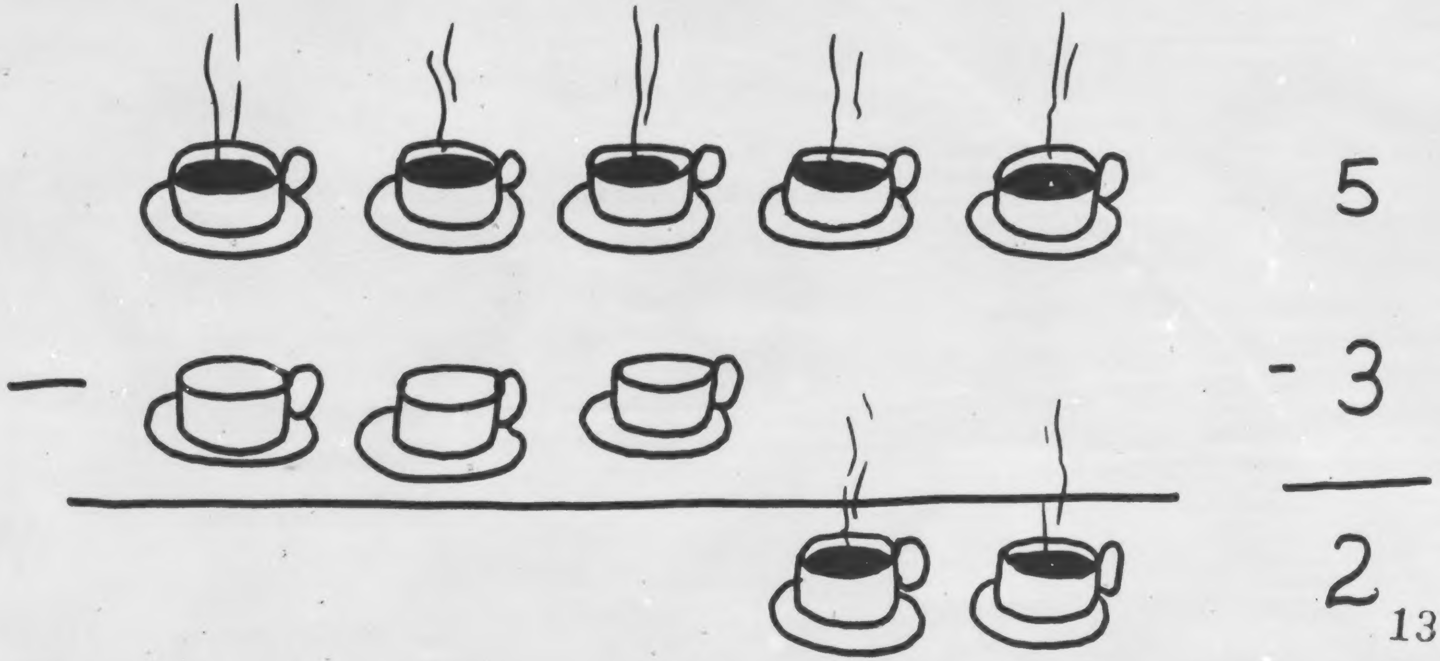
SIXTH ACTIVITY FOR SKILL A

Mark off ten nine-inch squares on the floor. Label the squares 0 through 9. Have the class sit in a circle around these ten squares. Have one child be "it." Ask the rest of the children to close their eyes during the game. The child who is it may choose any numeral he wishes as his starting point; he stands on the number and then tells the rest of the class where he is. For example: "Estoy parado en el 8." Now have him walk backward, stepping on one numeral with each step, and tell the class how many steps he has taken. For example,"He caminado 5 pasos para atras." Call upon someone to say where he standing as he calls off his position. Have the related subtraction equation written on the board (8 - 5 = 3).



SEVENTH ACTIVITY FOR SKILL A

Continue to use sets of objects that illustrate take-away subtraction. Show the children a set of objects, and then the same set with some of the objects removed. They answer the question, "¿Cuantos quedan?" to complete subtraction sentences.



SKILL B: To find a point on the number line and illustrate a subtraction problem by a move to the left on the number line.

VOCABULARY: subtraction number line

FIRST ACTIVITY FOR SKILL B

Have the students use tape number lines on their desks while you work with a number line drawn on the chalkboard. To relate the operation of addition as shown on the number line to the operation of subtraction, begin with movement to the right. The students start with four and move three to the right, and then stop at seven, writing the equation 4 + 3 = 7. Then, from seven, they move three to the left, stopping on four. They may write the related subtraction equation, 7 - 3 = 4, under the addition equation. By comparing the two equations, they can review the idea that we add the two addends to name the sum in addition, but in the subtraction, we subtract one addend from the sum to name the missing addend. You may wish to develop several more equations in the same manner, emphasizing the inverse relationship between adding and subtracting the same number, and the movement to the left of the number line.

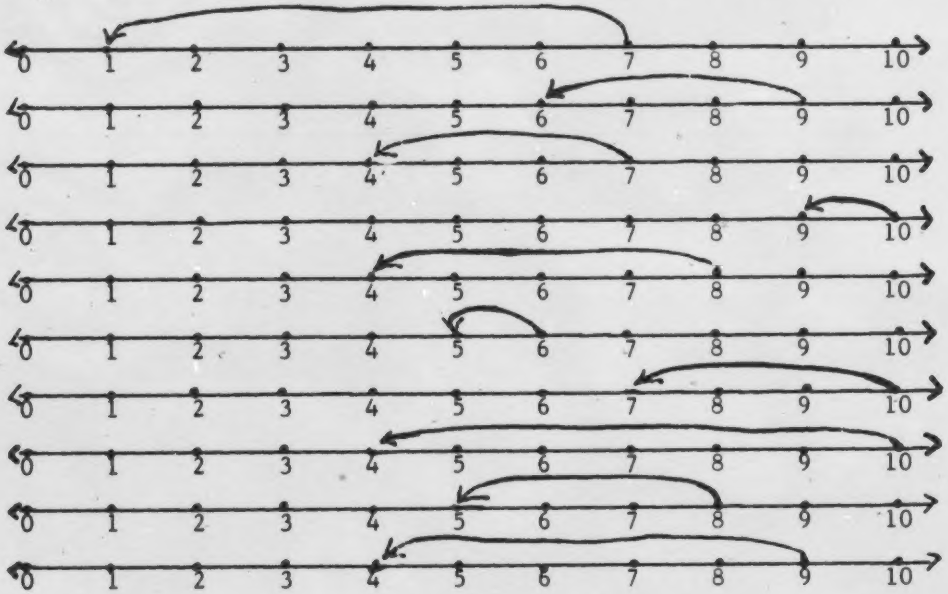
SECOND ACTIVITY FOR SKILL B

Encourage the children to pretend to be an animal who jumps like coquies or lagartijos and use the number line on the floor to act out their stories. For example, a student playing "lagartijo" starts at nine and jumps to three before he can catch his mosquito. The other students can write the equation, 9 - 6 = 3, showing how many spaces the performer had to jump.

THIRD ACTIVITY FOR SKILL B

Write the following equations on the board and have small groups of students act them out.

7 - 6 = 1
9 - 3 = 6
7 - 3 = 4
10 - 1 = 9
8 - 4 = 4
6 - 1 = 5
10 - 3 = 7
10 - 6 = 4
8 - 3 = 5
9 - 5 = 4

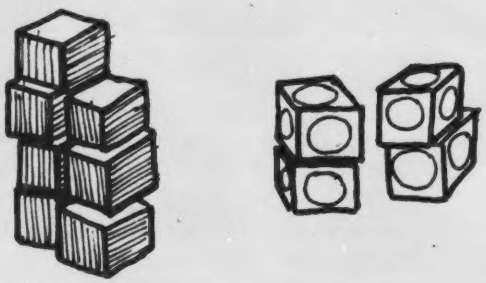

0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10
0 1 2 3 4 5 6 7 8 9 10

SKILL C: To use sets to illustrate comparative subtraction (differences between numbers of objects in two sets).

VOCABULARY: comparative subtraction

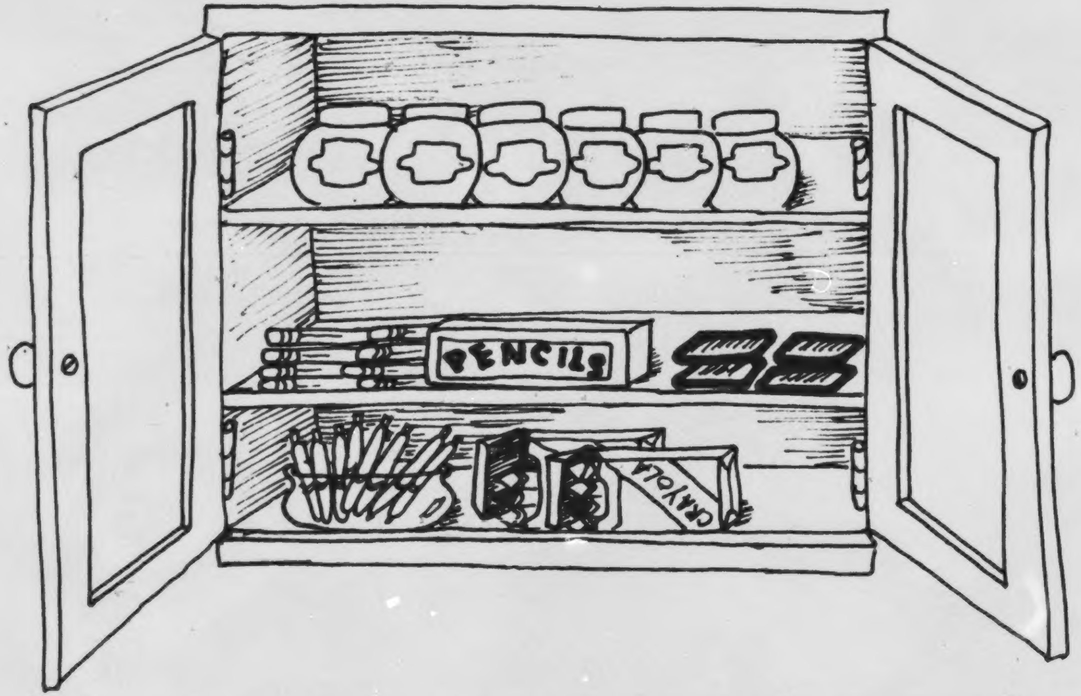
FIRST ACTIVITY FOR SKILL C

Display a group of seven red blocks and four blue ones. "¿Cuál conjunto de bloques tiene más miembros? ¿Cuántos más? ¿Cómo llegamos a saber que hay tres bloques rojos más que bloques azules?" One student might say that he matched the objects and then found how many more. Another might say that he knew three plus four is seven. After discussing the possibilities, show a set of eight blue blocks and four red ones. "¿Cuál grupo tiene más? ¿Cuántos más?"



SECOND ACTIVITY FOR SKILL C

Use the following example to reinforce comparative subtraction. "¿ Cuántos lapices hay en este ejemplo? ¿ Cuántos borradores? ¿ Hay más lapices o más borradores? ¿ Cuántos lapices más hay?" Ask what they are to write. Then have a child write the subtraction sentence.



THIRD ACTIVITY FOR SKILL C

Provide this activity for those who need more practice. On the board draw one set of six pictures-objects and another set of nine. "¿Cuántos hay en el primer grupo? ¿En el segundo? ¿Hay más en el primero o en el segundo grupo? ¿Cuantos mas?" Continue the activity, varying the numbers of picture-objects in the sets.

SKILL D: To complete a subtraction sentence for the numbers of objects in two sets.

VOCABULARY: subtraction sentence

FIRST ACTIVITY FOR SKILL D

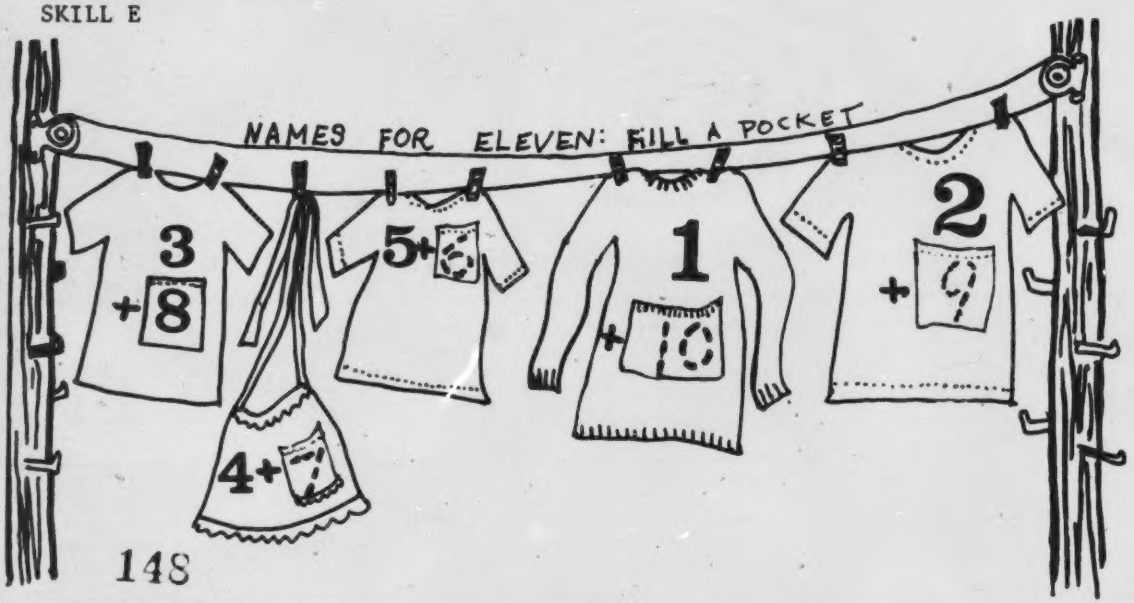
Have seven children stand in a group around you. In a whisper, tell two of them to sit down. "¿Cuántos niños quedan? ¿Con cuántos niños empezamos? ¿Cuántos se sentaron? Así que quedan cinco." Whisper to three more children that they should be seated. Again ask questions. Then call for the subtraction sentence that shows how many are left. Have the child who is able to say it in words write it in numerals on the board.

Show the children nine objects, five of one kind and four of another. Help the children find out how many there are all together, how many of one kind, how many of another kind, which group has more and how many more. Then help the students to consider the two sets from another point of view. Offer a lot of practice with how many there are all together in both sets and how many are left after taking away one set. If possible, let the children take turns forming the sets and asking questions like those above.

SKILL E: To subtract one addend less than 10 from sums more than 10 and less than 20.

VOCABULARY: missing addend

FIRST ACTIVITY FOR SKILL E Establish with the students all the combinations of addends for the sum eleven.


NAMES FOR ELEVEN: FILL A POCKET
3 + 8
4+7
5+6
1 + 10
2 + 9

Have the students find the missing addends for the sum of 11.

10 + __ = 11   11 - 10 = __
7 + __ = 11   11 - 7 = __
9 + __ = 11   11 - 9 = __
6 + __ = 11   11 - 6 = __
5 + __ = 11   11 - 5 = __
4 + __ = 11   11 - 4 = __
3 + __ = 11   11 - 3 = __

SECOND ACTIVITY FOR SKILL E

Using aids of an empty egg carton and 12 small objects representing a "dozen eggs," have pairs of students complete the following equations. They may be encouraged to discover more addition and subtraction combinations using the number 12.

10 + __ = 12

9 + __ = 12

8 + __ = 12

6 + __ = 12

__ + __ = 12

__ + __ = 12

__ + __ = 12

12 - 2 = __

12 - 3 = __

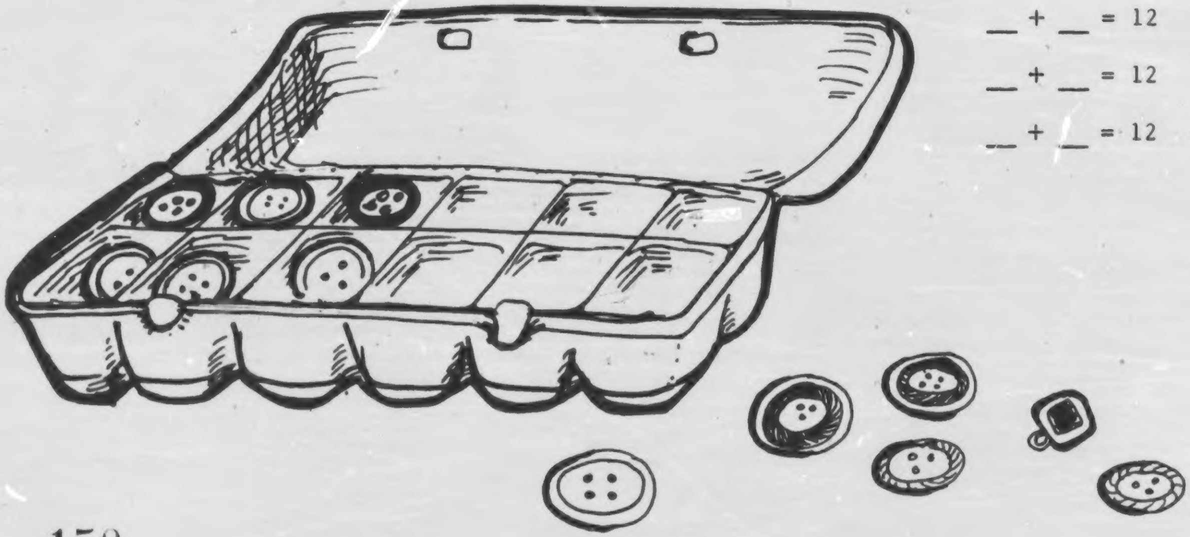
12 - 4 = __

12 - 6 = __

12 - __ = __

12 - __ = __

12 - __ = __

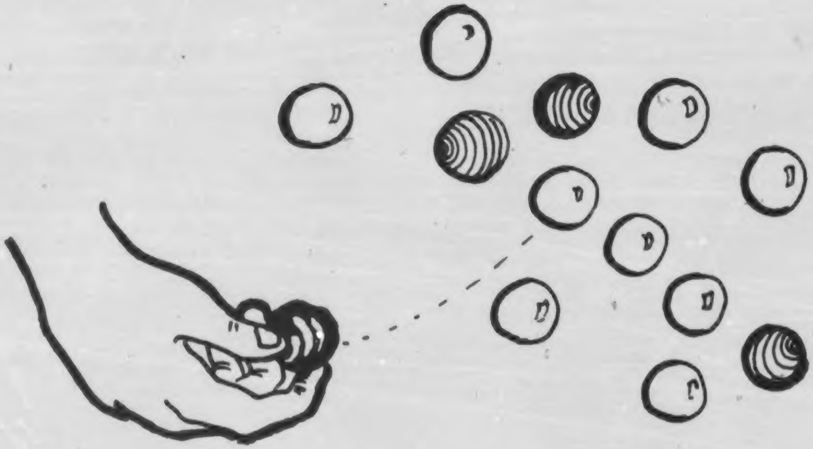


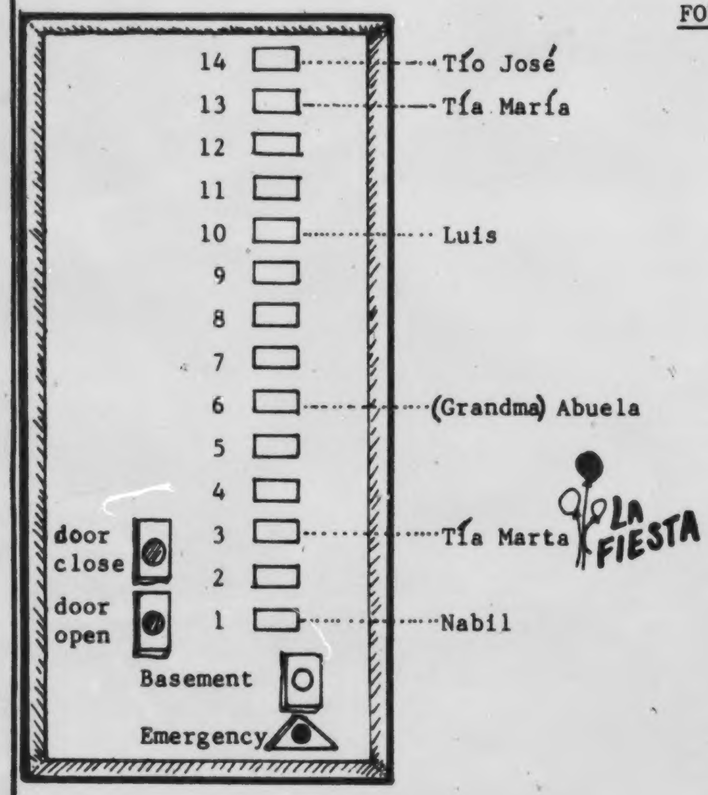
THIRD ACTIVITY FOR SKILL E

Have a group of two to four students play "Bolitas" and record eight or more moves in subtraction equations.

ROSA Y PEDRO

			hit		remain
1.	12	-	☐	=	☐
2.		-		=	
3.		-		=	
4.		-		=	
5.		-		=	
6.		-		=	
7.		-		=	
8.		-		=	




14
13
12
11
10
9
8
7
6
5
4
3
2
1
Tío José
Tía María
Luis
(Grandma) Abuela
Tía Marta
Nabil
LA FIESTA
door close
door open
Basement
Emergency

FOURTH ACTIVITY FOR SKILL E

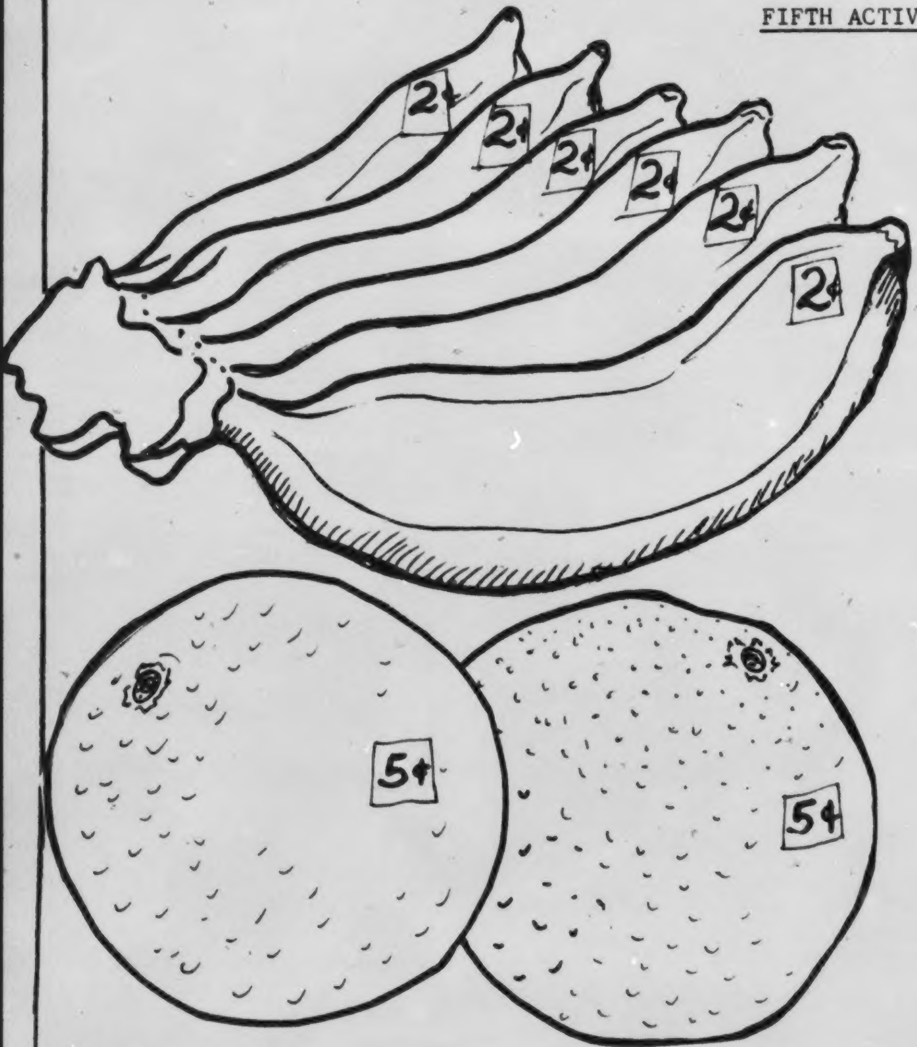
Usando el elevador:

Ahora Rafael vive en Connecticut pero el tiene familiares y amigos en la ciudad de New York. El fue de visita y descubrió los siguientes números entre los distintos pisos de apartamentos.

1. Desde el apartamento de Luis al de Nabil hay _____ pisos.
   10 - 9 = ☐
2. Desde el apartamento de Tío José al de Luis hay _____ pisos.
   14 - 4 = ☐
3. Desde el apartamento de Tía María al de Abuela hay _____ pisos.
   13 - 7 = ☐
4. Desde el apartamento de Tío José al de Abuela hay _____ pisos.
   14 - 6 = ☐
5. Tía Marta tuvo una fiesta e invitó toda la familia de Rafael y sus amistades. ¿Cuántos piso tuvo que viajar en el elevador cada uno de ello? (Nabil y Rafael subieron corriendo por las escaleras hasta el apartamento de Tía Marta.)

	pisos		pisos
Tío José	14 - ☐ = 3	Luis	10 - ☐ = 3
Tía María	13 - ☐ = 3	Abuela	6 - ☐ = 3

FIFTH ACTIVITY FOR SKILL E



Los estudiantes pueden comprar lo siguiente:

Yo tengo 19¢.

Aquí están los precios.

Guineitos Niños **2**¢ cada uno

Chinas **5**¢ cada uno

Para comprar 2 chinas tengo que gastar 10 ¢

y me quedan ☐ ¢

Para comprar 1 china tengo que gastar ☐ ¢

y me quedan ☐ ¢

Para comprar 3 guineos tengo que gastar ☐ ¢

y me quedan ☐ ¢

Para comprar 6 guineos tengo que gastar ☐ ¢

y me quedan ☐ ¢

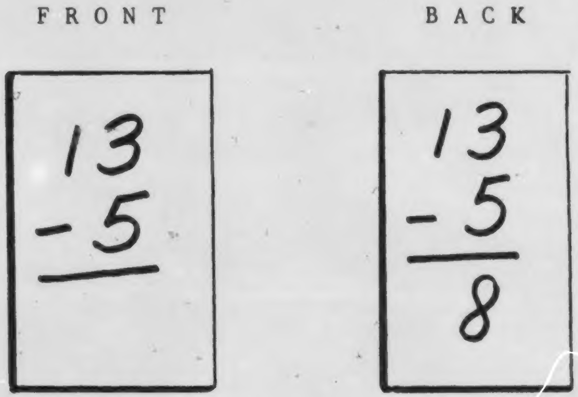
Para comprar 2 guineos tengo que gastar ☐ ¢

y me quedan ☐ ¢

SIXTH ACTIVITY FOR SKILL E

Have the students build up a file of flash cards for subtraction facts for sums up to 19. The students will find it most helpful to have these basic facts memorized.

The cards may look like this.

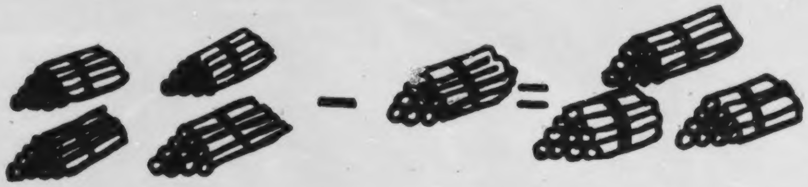


SKILL F: To subtract multiples of ten from sums less than 100.

VOCABULARY: multiples of ten

FIRST ACTIVITY FOR SKILL F

Begin by showing the students bundles of tens with tongue depressors, stirrers, pencils or pipe cleaners. Ask the students to first join 3 bundles of ten with two bundles of ten and name the numbers suggested (20, 30 and 50). Make sure that the students understand how a number for a set of tens is written in compact form, for example, 3 tens may be written as the compact numeral 30.



4 DECENAS - 1 DECENA = 3 DECENAS

40 - 10 = 30

SECOND ACTIVITY FOR SKILL F

Write sentences like the following on the board. Have the students write the missing numeral and then rewrite the sentences using the two digit numeral for each multiple of ten.

7 decenas - 4 decenas = ____decenas   70 - 40 = 30

8 decenas - 6 decenas = ____decenas   ? - ? = ?

6 decenas - 1 decena = ____decenas   ? - ? = ?

Also help the students write a series of parallel equations like the following:

5 - 2 = 3

5 decenas - 2 decenas = 3 decenas.

50 - 20 = 30

THIRD ACTIVITY FOR SKILL F

Draw a rectangle on the floor. The student throws 2 bean bags and subtracts the two addends. Another student may stand at the chalkboard and write the equation.

10	30	10
10	50	20
30	20	10

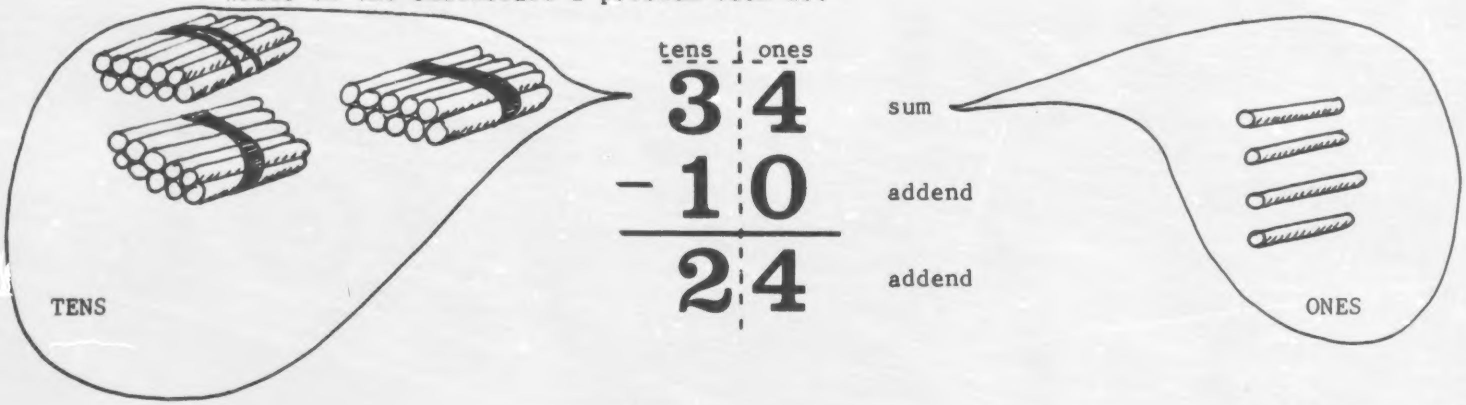
SKILL G: To subtract two-digit numbers between ten and 100, without renaming tens as ones in the sum.

VOCABULARY: two-digit numbers

FIRST ACTIVITY FOR SKILL G

To establish a concrete understanding of two-digit subtraction bundles of tens might be used (toothpicks, stirrers, tongue depressors). Secure the bundles with rubber bands the children can easily undo in the event they must make sets of ones. Be sure the children remember where the ones place and the tens place occur in a two-digit number.

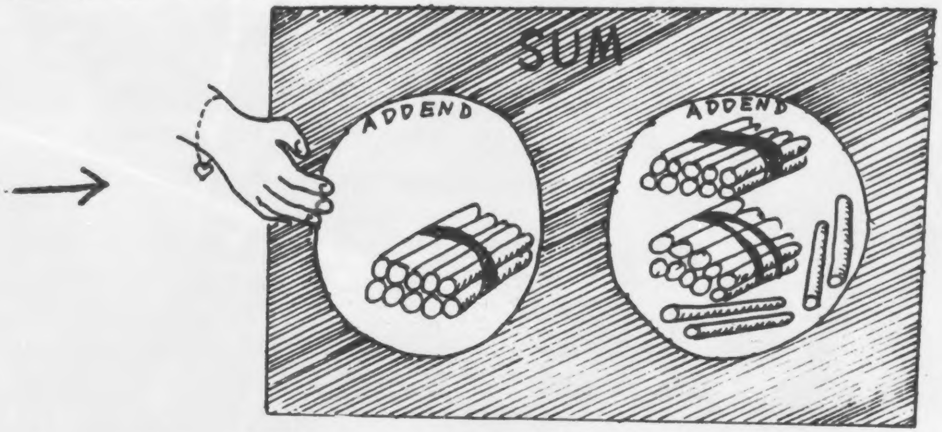
Write on the chalkboard a problem such as:



FIRST ACTIVITY FOR SKILL G CONTINUED

To further demonstrate 34 - 10 = 24, use a large sheet of red paper to show the sum of the combined addends and two smaller sheets of yellow paper to show each addend. Place the required number of bundles of tens and ones on each yellow addend sheet to discover the sum. Take away one addend and record the difference.

Encourage the students to use the bundles in solving the following subtraction problems until they are not needed.



¿Si le quitas 10 al 34 cuántos te quedarían?

Name the missing addend.

a. In the ones place: (Emphasize the necessity of solving the ones place before the tens.)

tens ¦ ones				
5 ¦ 8	6 6	5 4	4 7	4 9
- 1 ¦ 0	- 3 0	- 3 0	- 2 0	- 3 0
4 ¦ $\boxed{8}$	3 ☐	2 ☐	2 ☐	1 ☐

b. In the tens place:

tens ¦ ones				
3 ¦ 6	6 9	5 8	2 7	4 5
- 1 ¦ 0	- 3 0	- 2 0	- 1 0	- 1 0
$\boxed{2}$ ¦ 6	☐ 9	☐ 8	☐ 7	☐ 5

c. In the ones and tens places:

tens ¦ ones				
5 ¦ 2	6 4	3 2	2 6	4 9
- 4 ¦ 0	- 3 0	- 2 0	- 1 0	- 3 0
$\boxed{1 \mid 2}$	☐	☐	☐	☐

SECOND
ACTIVITY
FOR
SKILL G

Give the children more practice with two-digit subtraction using examples such as the following. They should use the aids if they need them.

a.

$$\begin{array}{rrrr} 3\,3 & 2\,6 & 3\,4 & 4\,3 \\ -\,2\,1 & -\,1\,4 & -\,2\,3 & -\,1\,2 \\ \hline 1\,\square & 1\,\square & 1\,\square & 3\,\square \end{array}$$

b.

$$\begin{array}{rrrr} 5\,3 & 7\,5 & 6\,4 & 8\,2 \\ -\,2\,1 & -\,3\,4 & -\,4\,1 & -\,5\,1 \\ \hline \square\,2 & \square\,1 & \square\,3 & \square\,1 \end{array}$$

c.

$$\begin{array}{rrr} 8\,9 & 7\,6 & 7\,8 \\ -\,7\,8 & -\,4\,3 & -\,4\,5 \\ \hline \boxed{} & \boxed{} & \boxed{} \end{array}$$

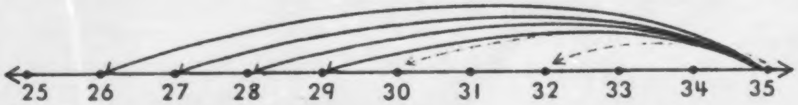
SKILL H To subtract a number less than ten from a number greater than ten. (Using the process of renaming tens as ones when necessary in the sum.)

VOCABULARY: re-naming

FIRST ACTIVITY FOR SKILL H Have the students work with tape number lines on their desk which go to 50. Write an equation such as 37 + 6 = ____ on the chalkboard, and have the students name the solution. Write the inverse equation, 43 - 6 = ____ and have the students use their number lines to name the solution. Build up patterns such as the following: 10 - 4 = 6, 20 - 4 = 16, 30 - 4 = 26. You may ask questions such as,"¿Cuál es la suma? ¿Cuáles son las sumas que faltan? ¿Cuántas decenas en la suma? ¿Cuántas decenas en la suma faltan? ¿Cuál es la combinación?" The students should be encouraged to discover that the number of tens in the missing addend is one less than the number of tens in the sum.

SECOND ACTIVITY FOR SKILL H

In this activity, the students work from the chalkboard to name the missing addends with the number line. The students are to show the moves by arrows on the number lines before they complete the equations.


25
26
27
28
29
30
31
32
33
34
35

$35 - 3 = \boxed{32}$

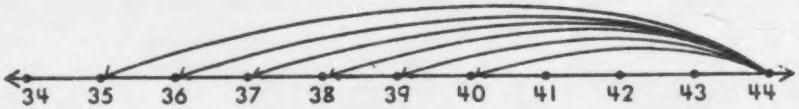
$35 - 5 = \boxed{30}$

$35 - 6 = \boxed{29}$

$35 - 7 = \boxed{28}$

$35 - 8 = \boxed{27}$

$35 - 9 = \boxed{26}$


34
35
36
37
38
39
40
41
42
43
44

$44 - 4 = \boxed{40}$

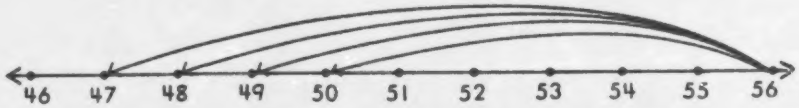
$44 - 5 = \boxed{39}$

$44 - 6 = \boxed{38}$

$44 - 7 = \boxed{37}$

$44 - 8 = \boxed{36}$

$44 - 9 = \boxed{35}$


46
47
48
49
50
51
52
53
54
55
56

$56 - 6 = \boxed{50}$

$56 - 7 = \boxed{49}$

$56 - 8 = \boxed{48}$

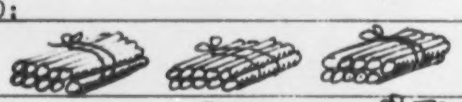
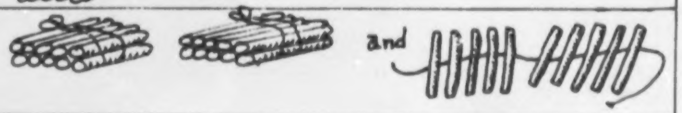
$56 - 9 = \boxed{47}$

THIRD ACTIVITY FOR SKILL H

The students may get impatient with the cumbersomeness of a number line when larger numbers are needed. The children may now be ready to learn and utilize the process of renaming (regrouping, carrying) to achieve a faster solution for subtraction problems where the one's digit in the sum is less than the one's digit in the given addend.

An example: $\begin{array}{r} 30 \\ -\ 5 \\ \hline \end{array}$ or renamed $\begin{array}{r} 20 + 10 \\ -\ 5 \\ \hline \end{array}$

a. To review renaming, show the students how they may use bundles of 10's to rename the multiples of 10:

30 =	
30 =	
30 =	20 + 10

Practice together or individually:

40 = ___ + 10

70 = ___ + 10

20 = ___ + 10

60 = ___ + 10

50 = ___ + 10

80 = ___ + 10

THIRD ACTIVITY FOR SKILL H CONTINUED

b. Once the students understand the process of renaming they should be shown how it is used for subtraction equations where the one's digit in the sum is less than the one's digit in the given addend. Go through a number of equations on the chalkboard using bundles of ten's if helpful. Provide the children with more opportunities to practice this form until they are confident to work independently.

1. $\begin{array}{r} 30 \\ -5 \\ \hline \end{array}$ OR $\begin{array}{r} 20 + 10 \\ -\ 5 \\ \hline 20 + \square \end{array}$

2. $\begin{array}{r} 40 \\ -6 \\ \hline \end{array}$ OR $\begin{array}{r} 30 + 10 \\ -\ 6 \\ \hline 30 + \square \end{array}$

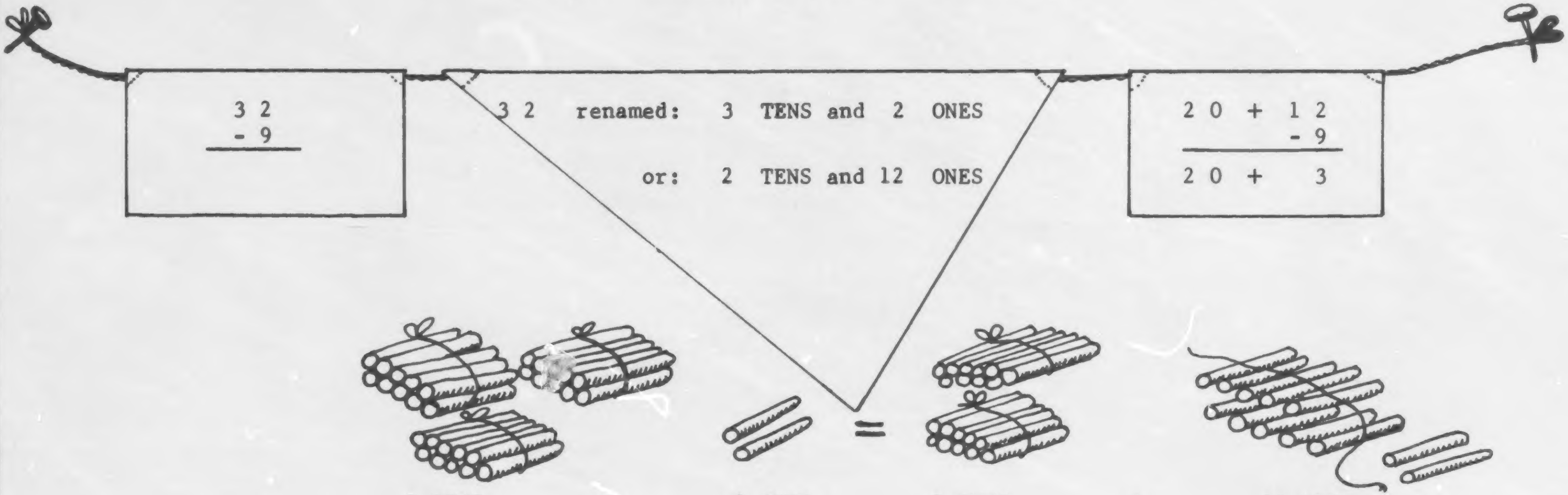
3. $\begin{array}{r} 30 \\ -8 \\ \hline \end{array}$ OR $\begin{array}{r} 20 + 10 \\ -\ 8 \\ \hline 20 + \square \end{array}$

4. $\begin{array}{r} 50 \\ -7 \\ \hline \end{array}$ OR $\begin{array}{r} 40 + \square \\ -\ 7 \\ \hline 40 + \square \end{array}$

5. $\begin{array}{r} 70 \\ -4 \\ \hline \end{array}$ OR $\begin{array}{r} 60 + \square \\ -\ 4 \\ \hline 60 + \square \end{array}$

FOURTH ACTIVITY FOR SKILL H

Having become acquainted with the process and a form used for renaming tens into ones, the children can be shown how to extend its use for subtraction equations which involve more complex two-digit numbers. (Bundles of tens again are helpful in showing the process of regrouping tens into ones.) Show on the chalkboard:



$$\begin{array}{r} 32 \\ -\ 9 \\ \hline \end{array}$$

32 renamed: 3 TENS and 2 ONES

or: 2 TENS and 12 ONES

$$\begin{array}{r} 20 + 12 \\ -\ 9 \\ \hline 20 + \ \ 3 \end{array}$$

3 TENS + 2 ONES = 2 TENS + 12 ONES

− 9 ONES − 9 ONES

FOURTH
ACTIVITY
FOR
SKILL H
(CONTINUED)

Practice renaming tens into ones in the two-digit numbers.

45 =

Decenas	Unidades
4	5

=

Decenas	Unidades
3	10 + 5

=

Decenas	Unidades
3	15

47 =

Decenas	Unidades
4	7

=

Decenas	Unidades
3	10 + 7

=

Decenas	Unidades
3	17

36 =

Decenas	Unidades
3	6

=

Decenas	Unidades
2	10 + 6

=

Decenas	Unidades
2	16

38 =

Decenas	Unidades
3	8

=

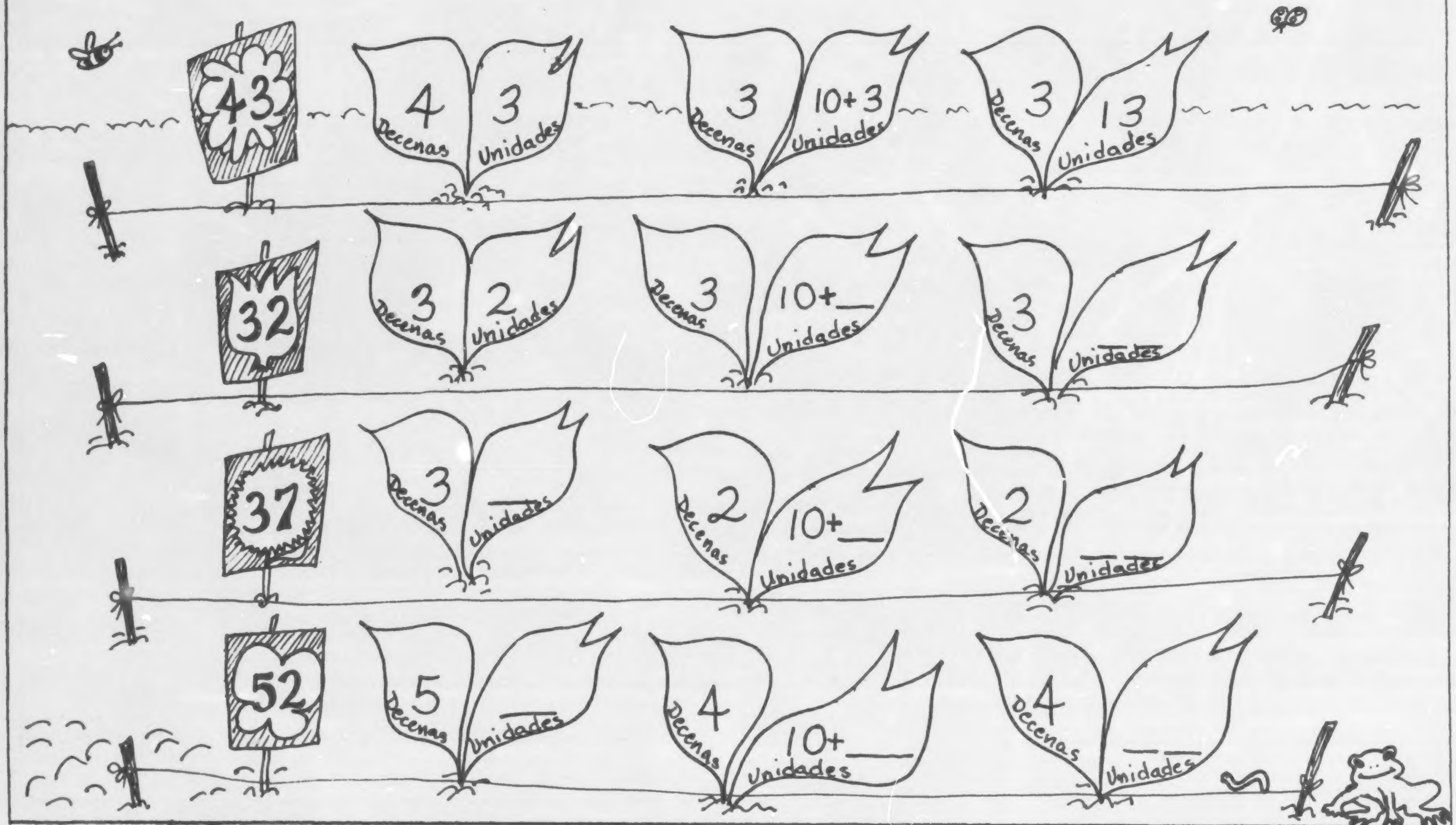
Decenas	Unidades
2	10 + 8

=

Decenas	Unidades
2	18

FIFTH ACTIVITY FOR SKILL H

Provide examples to practice renaming for two-digit numbers:


43
4 Decenas
3 Unidades
3 Decenas
10+3 Unidades
3 Decenas
13 Unidades
32
3 Decenas
2 Unidades
3 Decenas
10+__ Unidades
3 Decenas
__ Unidades
37
3 Decenas
__ Unidades
2 Decenas
10+__ Unidades
2 Decenas
__ Unidades
52
5 Decenas
__ Unidades
4 Decenas
10+__ Unidades
4 Decenas
__ Unidades

SIXTH ACTIVITY FOR SKILL H

Have the students work together through several of the following subtraction equations requiring use of a form for renaming tens into ones. The students will probably need much more practice to become independent in the process of renaming.

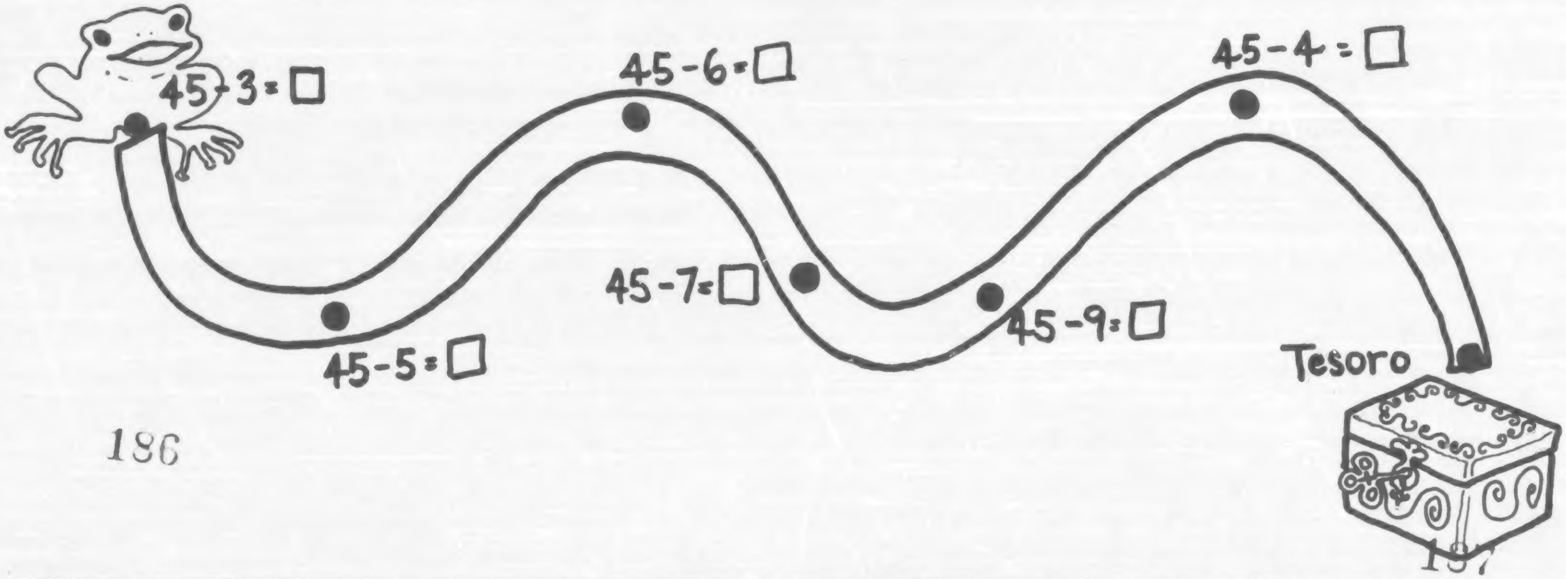
44 -7 ___	OR	30 + 14 - 7 ___ 30 + ___	63 -5 ___	OR	50 + 13 - 5 ___ ___ + ___
45 -9 ___	OR	30 + 15 - 9 ___ 30 + ___	52 -5 ___	OR	40 + 12 - 5 ___ ___ + ___
52 -6 ___	OR	40 + 12 - 6 ___ 40 + ___	25 -6 ___	OR	10 + 15 - 6 ___ ___ + ___
56 -8 ___	OR	40 + 16 - 8 ___ 40 + ___	42 -6 ___	OR	30 + 12 - 6 ___ ___ + ___

SEVENTH ACTIVITY FOR SKILL H

Draw several number lines on the floor, some with large intervals between the numbers and some with small intervals, for the children to use. Students may be divided into groups of "coquies," "pitirres" and "cotorras." Each group has a leader who shows a flash card, for example, 57 - 9. A member of his group hops on his line to show the missing sum.

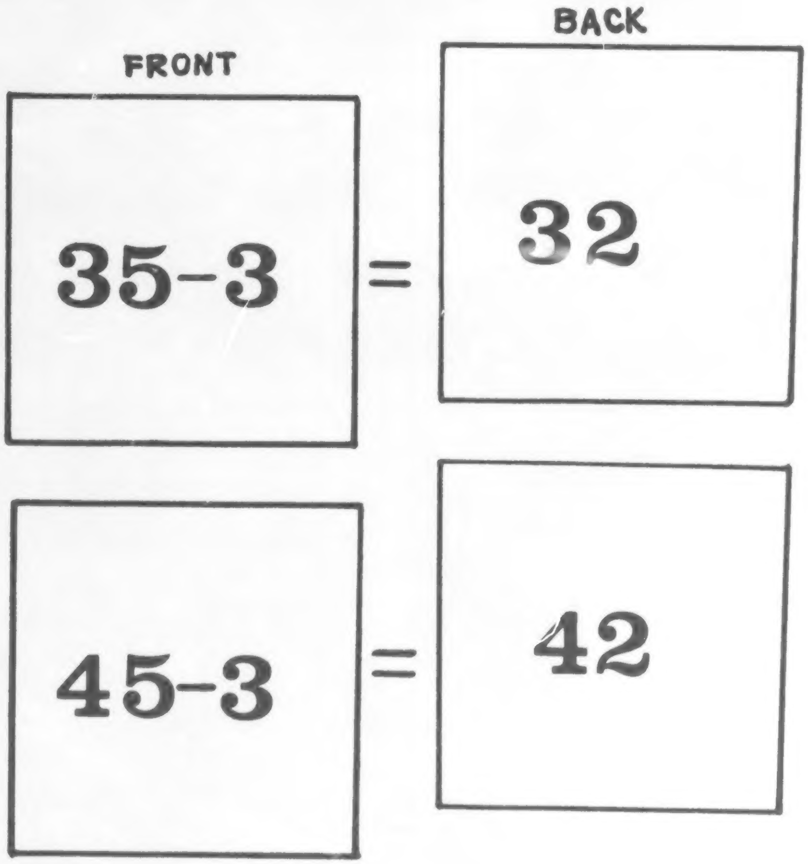
Have the students draw a large number line on the playground with chalk or whitewash. The students can be coquies hopping to show examples like these: 45 - 3, 45 - 6, 45 - 7, 45 -8, etc.

Have the students play "Busca el Tesoro." Draw a treasure map on the chalkboard with a long winding path to the treasure. A student writes each answer and if he gets them all correct, he finds the treasure. Erase the combinations and substitute others. Let other students try to reach the treasure.



EIGHTH ACTIVITY FOR SKILL H

Have the students build up a file of subtraction cards, and use the cards to practice as they need. The cards may look like this:



SKILL I: To subtract a two-digit addend from a two-digit sum where the process of renaming tens into ones is required.

FIRST ACTIVITY FOR SKILL I

The students can be helped to subtract two place numbers by working through a long form such as in examples a. through d.

a.

tens	ones
6	0
- 2	9

tens	ones
5	10
-2	9

c.

tens	ones
5	1
- 2	3

tens	ones
4	11
-2	3

b.

tens	ones
3	0
- 1	8

tens	ones
2	10
-1	8

d.

tens	ones
7	2
- 4	7

tens	ones
6	12
-4	7

SECOND
ACTIVITY
FOR
SKILL I

Once the long form for two-digit subtraction is understood, the students can be introduced to a shorter form.

For example:

a.

$$\begin{array}{r|l} 4 & 16 \\ \hline \text{tens} & \text{ones} \\ \hline \cancel{5} & \cancel{6} \\ -\ 3 & 8 \\ \hline & \end{array}$$

b.

$$\begin{array}{r|l} 3 & 14 \\ \hline \text{tens} & \text{ones} \\ \hline \cancel{4} & \cancel{4} \\ -\ 2 & 7 \\ \hline & \end{array}$$

WORD PROBLEM FOR THE FAMILY UNIT INVOLVING SUBTRACTION

¿Cuántos años tiene Julio?

¿Cuántas velas tiene el bizcocho de cumpleaños?

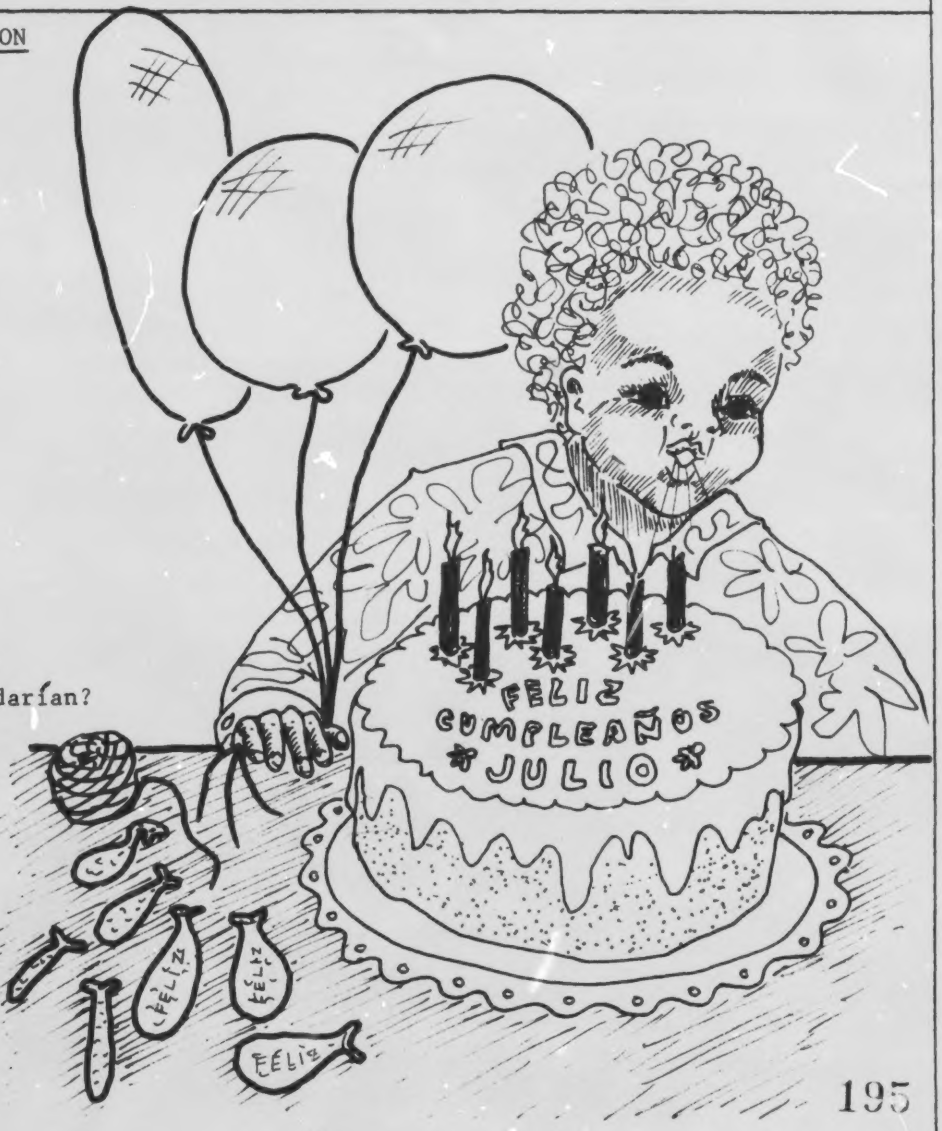
¿Cuántas velas apagó Julio?

¿Cuántas velas faltan de apagar?

¿Cuántos globos (bombas) están llenos de aire?

¿Cuántos globos (bombas) faltan por llenar de aire?

Si cinco globos (bombas) se reventaron, ¿cuántos quedarían?



Mastery Test Items For Unit III:
MY FAMILY - SUBTRACTION

Have the children use the number lines to find the answers to the following problems.

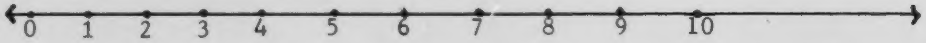
8 - 2 = ______

7 - 5 = ______

6 - 3 = ______

10 - 4= ______

9 - 8 = ______



The children can find the answers to the following problems.

32 - 7 = ______

21 - 3 = ______

53 - 8 = ______

17 - 8 = ______

45 - 9 = ______

The children can find the answers to the following problems.

70 - 30 = ______

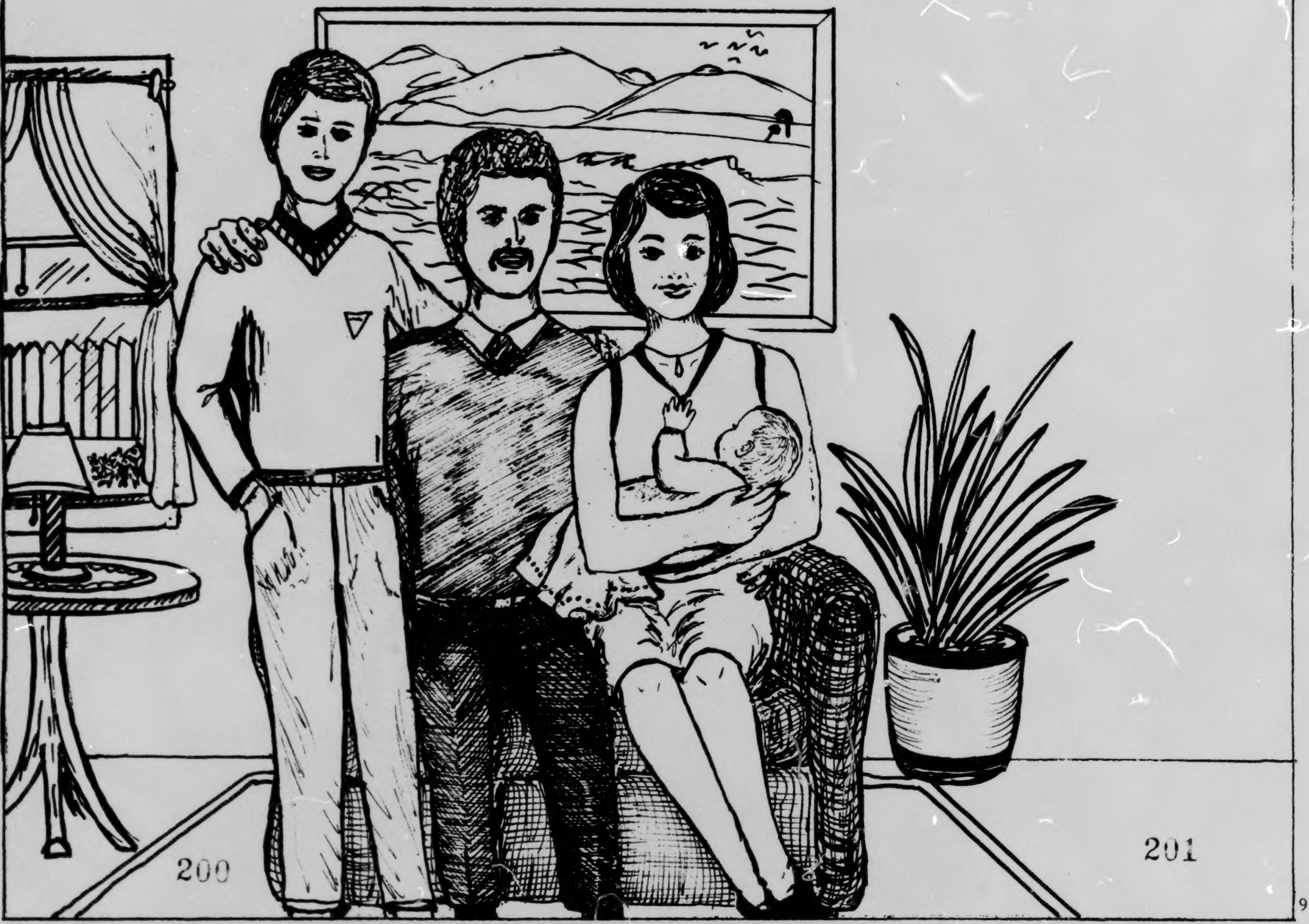
90 - 50 = ______

50 - 20 = ______

40 - 20 = ______

80 - 70 = ______

$$\begin{array}{r}34\\-10\\\hline\end{array}\qquad\begin{array}{r}25\\-11\\\hline\end{array}\qquad\begin{array}{r}42\\-12\\\hline\end{array}\qquad\begin{array}{r}56\\-20\\\hline\end{array}$$


200
201

UNIT IV: MY HOME - Multiplication/Division

SKILL A: To write the numeral for the number of rows in an array.

SKILL B: To join sets of two, three and five and complete the corresponding multiplications.

SKILL C: To use the number line to name the sum of two addends less than ten.

SKILL D: To write the product for a multiplication sentence that describes a group of line segments.

SKILL E: To do word problems that require working with the numbers of different objects in an array.

SKILL F: To complete a multiplication sentence that describes an array.

SKILL G: To introduce the vertical form of multiplication and practice basic multiplication facts involving two as a factor.

SKILL H: To develop an understanding of one as the identity element in multiplication.

SKILL I: To practice basic multiplication facts involving three as a factor.

SKILL J: To practice basic multiplication facts with five as a factor.

SKILL K: To supply missing numbers in a sequence of even-odd or whole numbers.

SKILL L: To develop the concept that division is the inverse of multiplication. Division facts: 2,3,5.

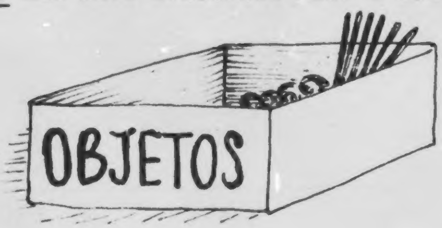
SKILL M: To introduce the division frame and the division sign.

SKILL A: To write the numeral for the number of rows in an array.

VOCABULARY:
arrays
rows

FIRST ACTIVITY FOR SKILL A

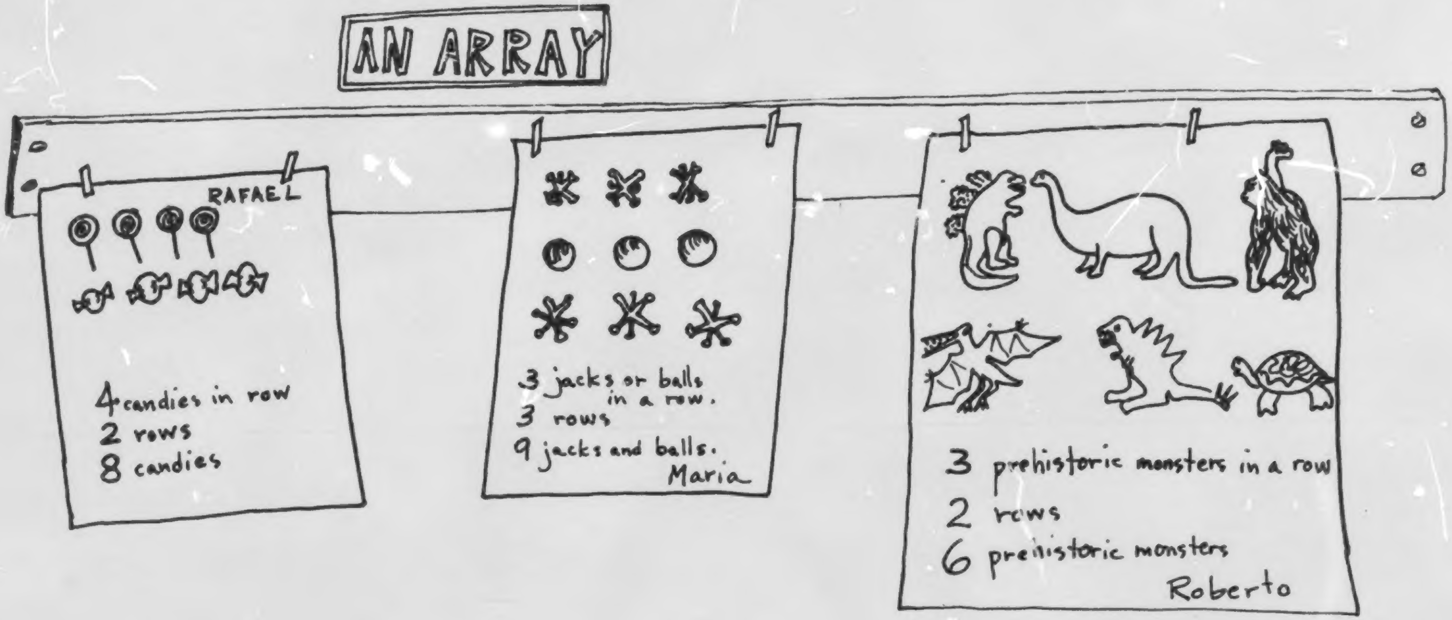
Have available an object box containing for example: stones, ice cream sticks, shells, bottle caps, coffee stirrers, dried lima beans, and different types of nuts. Mark the box in bold letters OBJETOS and have available near a math learning center.



Ask each child to get from the object box several objects of one kind - for example, 10 or 12 stones or sticks. "Usen 5 de sus objetos para hacer una hilera." As they do this, check to see that each child is arranging the five objects horizontally to form the row. Then, ask the children to make a second row directly below the first, using the same number of objects. Ask: "¿Cuántas hileras? ¿Cuántos objetos en cada hilera? ¿Cuántos objetos por todo? Give a good deal of practice of this kind: In all of these practice exercises, the teacher should emphasize that sets of rows having the same number of objects is called an array (un arreglo en lineas).

SECOND ACTIVITY FOR SKILL A

Have children draw or paint pictures showing ordered rows of objects, such as toys on a counter. Below each illustration, have them indicate how many rows are in the array, how many objects are in each row, and how many objects there are all together.


AN ARRAY
RAFAEL
4 candies in row
2 rows
8 candies
3 jacks or balls in a row.
3 rows
9 jacks and balls.
Maria
3 prehistoric monsters in a row
2 rows
6 prehistoric monsters
Roberto

SKILL B: To join sets of two, three and five and complete the corresponding multiplications.

VOCABULARY: equal addends
times

FIRST ACTIVITY FOR SKILL B	Have the students place objects on their desks to form two sets of two, and write the equation 2+2=__. Repeat this procedure for two sets of three, two sets of four, and so on, as far as two sets of nine.
SECOND ACTIVITY FOR SKILL B	Have the students form two teams. First, have two students on each team, then three, then four and so on. As the teams form, have the students name the number of students on each team and on both teams.
THIRD ACTIVITY FOR SKILL B	To introduce "times" and "x," have the students write the equation 3 + 3 = 6 and ask: "¿Cuántas veces escribimos el 3?" As they respond "twice" write 2x3=6. Repeat this procedure for 4 + 4, 5 + 5, etc.

FOURTH ACTIVITY FOR SKILL B

Have students practice multiplication with two as a factor by listening as you name a number twice. The teacher says, "Four,four". The students tell how many times you said the number and write the equation (2 x 4 = 8). Examples: "One, one, one" (3 x 1 = 3) or "One, one, one, one" (4 x 1 = 4).

Use this activity as a game by separating the group into teams and giving two points for each correct answer. By keeping score in this way, you can reinforce multiplication by two.

FIFTH ACTIVITY FOR SKILL B

X		Number of Pencils				
		1	2	3	4	5
Cost for Each Pencil	1¢	1¢	2¢	3¢	4¢	5¢
	2¢	2¢	4¢	6¢	8¢	10¢
	3¢	3¢	6¢	9¢	12¢	15¢
	4¢	4¢	8¢	12¢	16¢	20¢
	5¢	5¢	10¢	15¢	20¢	25¢

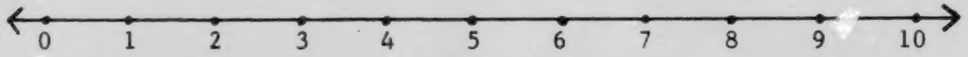
Ask students to solve the following verbal problems such as: What is the cost of two pencils at 3¢ each? at 4¢ each? Or, What is the cost of three pencils at 2¢ each? of 4 pencils? of 5 pencils?

SKILL C: To use the number line to name the sum of two addends less than ten.

VOCABULARY: number line

FIRST ACTIVITY FOR SKILL C:

Draw a number line on the chalkboard.



Have the students show the moves for 2 equal addends, beginning at 0 and moving to the right two moves. Example: To show 3 + 3, they make one move for 0 to 3 and the second from 3 to 6. Ask them: How many times did you move? If they respond "twice" you will write "times" making the point that "twice" is another way of saying "2 times".

SKILL D: To write the product for a multiplication sentence that describes a group of line segments.

VOCABULARY:
product
multiplication sentence

FIRST ACTIVITY FOR SKILL D

Use various types of animals to illustrate the idea of the number of groups times the number of objects in each group. Display photographs of octopuses, chickens. Ask: "¿Cuántos pulpos hay? ¿Cuántos patas hay por todo?" Have the students write the corresponding numbers on their papers. Repeat the process with lobster claws, chicken feet, etc.

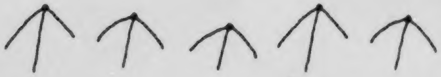
SECOND ACTIVITY FOR SKILL D

Read this multiplication sentence aloud. " 3 x 2 = 6. Tres multiplicado por dos es igual a 6." Then prepare this activity for chalkboard:

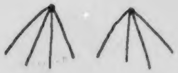
Have the children read the question on the board. Then call attention to the first example: "¿Cuántos grupos de líneas rectas hay? ¿Cuántas líneas rectas hay en cada grupo? ¿Cuántas líneas rectas hay por todo?" Have a child read the multiplication sentence, 5 x 3 = 15. Then ask the children to complete board work on their own.

SECOND
ACTIVITY
FOR
SKILL D
(CONTINUED)

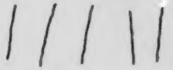
¿Cuántas líneas rectas?



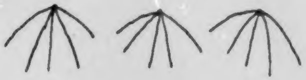
5 × 3 = 15



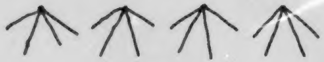
2 × 4 = 8



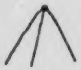
5 × 1 = 5



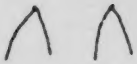
3 × 5 = 15



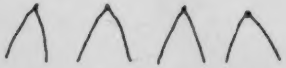
4 × 4 = 16



1 × 3 = 3



2 × 2 = 4



4 × 2 = 8

SKILL E: To do word problems that require working with the numbers of different objects in an array.

VOCABULARY: array

FIRST ACTIVITY FOR SKILL E

Have the children work in pairs to search through old magazines for pictures showing orderly arrangements of objects, such as cans of soup or bars of soap. When these have been cut from the magazines, have the children work out such questions as: ¿Cuántas hileras hay en el arreglo de líneas? ¿Cuántas en cada hilera? ¿Cuántas por todo?

SECOND ACTIVITY FOR SKILL E

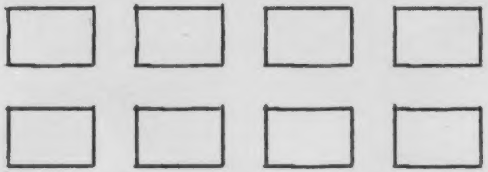
On the board draw four rows of picture-objects - one row of four, one row of three, one row of two, and one row of one. Ask: "¿Cuántas hay por todo?" After the children have answered that there are ten, ask if the picture-objects are arranged in such a way that a multiplication sentence could be made. When the children understand that they cannot make a multiplication sentence from such an array, then call for someone to come to the board and draw an array from which a multiplication sentence can be written.

SKILL F: To complete a multiplication sentence that describes an array.

VOCABULARY: column

FIRST ACTIVITY FOR SKILL F

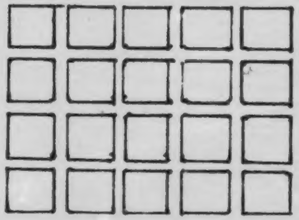
Draw an array of two rows and four columns on the board.



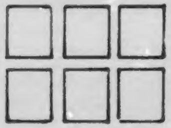
"¿Cuántas hileras hay? ¿Cuántas columnas? ¿Cuántas por todo?" Remind the students that a row goes across and a column goes up and down. Call for a volunteer to write the corresponding multiplication sentence on the board. He should write:two rows times four columns equals eight (2 x 4 = 8). Offer more practice by drawing several arrays for the children to use.

SECOND
ACTIVITY
FOR
SKILL F

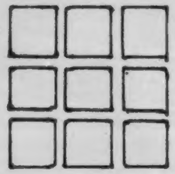
Do this activity sheet with the students. Then check their work by having them write the sentences on the board.



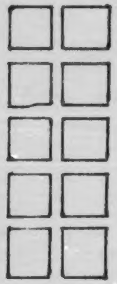
4 × 5 = __



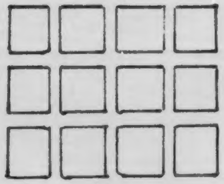
2 × 3 = __



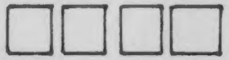
3 × 3 = __



5 × 2 = __



3 × 4 = __



1 × 4 = __

THIRD ACTIVITY FOR SKILL F	Write several multiplication sentences on the board. Then have the children use rulers to draw arrays of boxes illustrating those combinations. Let them color or decorate the boxes, and then have them write complete multiplication sentences below.
FOURTH ACTIVITY FOR SKILL F	Have one child show multiplication flashcards with factors of five or less to two teams of students at once. Have one or two other children keep score. The team that first says the correct product gets a point.
FIFTH ACTIVITY FOR SKILL F	Show the children how to bounce a rubber ball and count to the rhythm of each bounce. Start them counting by ones, then twos, then threes, fours, fives and finally tens.

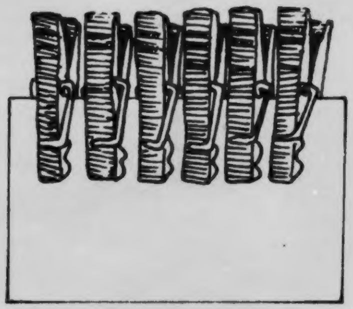
SKILL G: To introduce the vertical form of multiplication and practice basic multiplication facts involving two as a factor.

VOCABULARY: vertical
factor

FIRST ACTIVITY FOR SKILL G

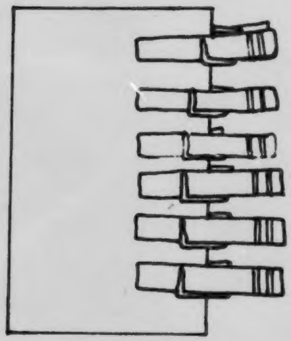
Show two sets of three clothspins on a card. Ask the students to record the multiplication and addition equations shown by the card and clothspins.
Then turn the card on its side and record $\begin{array}{r}3\\+\ 3\\\hline\end{array}$ and $\begin{array}{r}3\\\times 2\\\hline\end{array}$.

Lead the students to see that multiplication, like addition, may be recorded in vertical form without any change in properties. The form $\begin{array}{r}3\\\times 2\\\hline\end{array}$ is read, "Dos por tres" and corresponds to 2 x 3, while $\begin{array}{r}3\\\times 2\\\hline\end{array}$ is read "Tres por dos" and corresponds to 3 x 2.



$3+3=6$

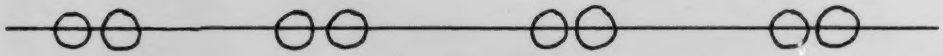
$2\times3=6$



$\begin{array}{r}3\\+3\\\hline 6\end{array}\quad\begin{array}{r}3\\\times2\\\hline 6\end{array}$

SECOND ACTIVITY FOR SKILL G

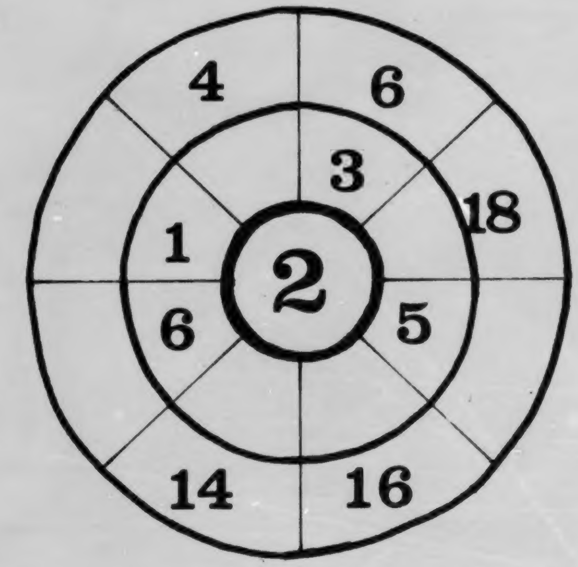
Have the students practice stringing beads on a wire hanger. They string the beads in sets of two and write the equation for the number of beads.



4 x 2 = 8

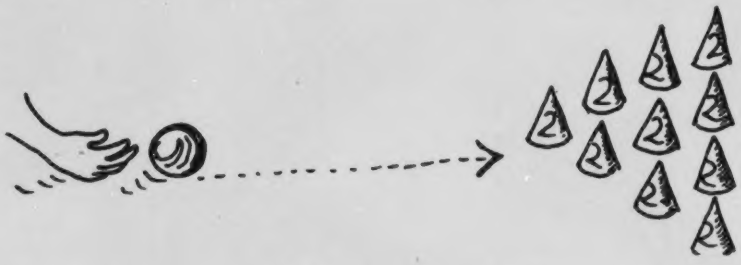
THIRD ACTIVITY FOR SKILL G

Have the students practice with a number wheel like the following. The factor 2 is in the center, the outer ring is for the products.



FOURTH
ACTIVITY
FOR
SKILL G

Have the students play "Tenpins." Ten sheets of paper are rolled to form cone-shaped pins, with "2" on each pin.



The pins are set up in bowling pin arrangement. The student rolls a rubber ball toward the pins and determines his score by counting the number of pins he knocks down and then multiplying by two. The game may be adapted for other factors by changing the score per pin.

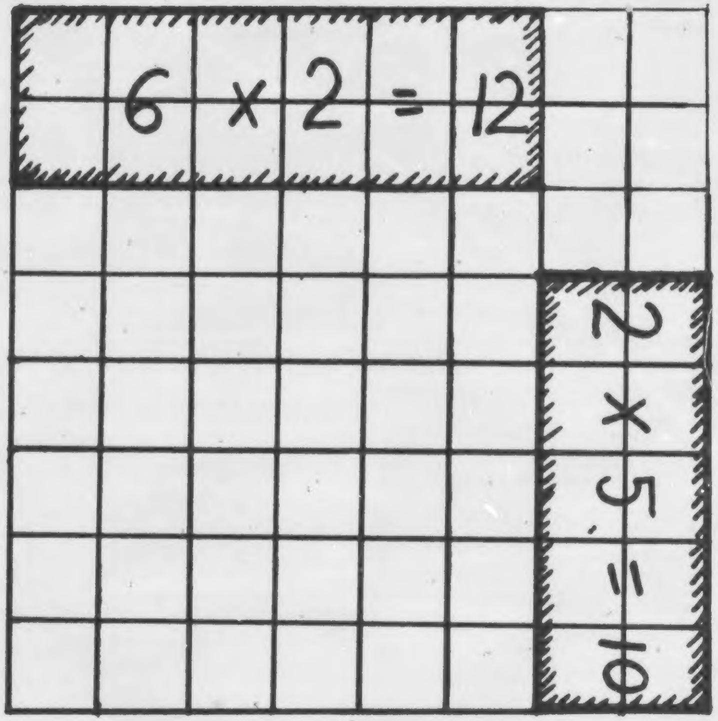
FIFTH
ACTIVITY
FOR
SKILL G

Have the students list the multiplication facts for two, as shown here:

1 x 2 = 2   2 x 1 = 2
2 x 2 = 4   2 x 2 = 4
3 x 2 = 6   2 x 3 = 6

The student may play "Estoy Pensando." One student says: "Estoy pensando en un número que cuando se multiplica por dos, es igual a 16. ¿Qué número es? Estoy pensando en otro número. Es el producto de 2 x 6. ¿Qué número es?"

SIXTH ACTIVITY FOR SKILL G	Have the students draw pictures on sheets of graph paper or squared paper of multiplication facts.



SKILL H: To develop an understanding of one as the identity element in multiplication.

VOCABULARY: identity element

FIRST ACTIVITY FOR SKILL H

Write placeholder equations on the chalkboard as shown. Have the children complete each equation by recording the product in the placeholder. When all of the equations have been completed, discuss the pattern that has been formed. Lead them to generalize that any number times one is that same number.

0 x 1 =

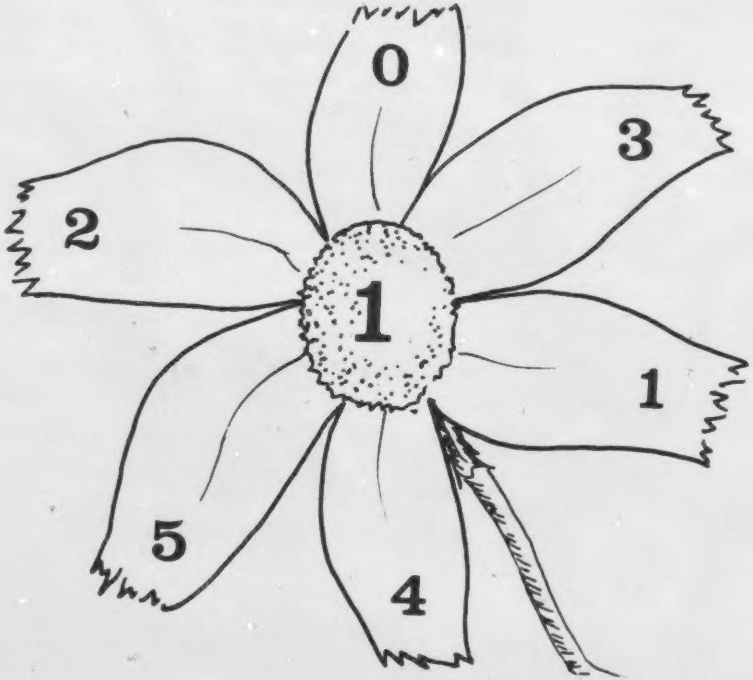
1 x 1 =

2 x 1 =

3 x 1 =

4 x 1 =

5 x 1 =

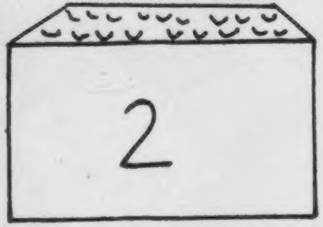


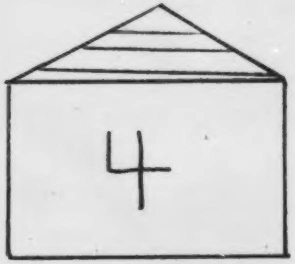
SECOND ACTIVITY FOR SKILL H	Draw a picture of a large daisy on the board. Write a numeral, 0 through 5, on each of six petals and the numeral 1 in the center of the daisy. Call on a child to multiply the number named by the numeral on each petal by one. When one child "picks" all the petals off the daisy by naming each product correctly, he wins. Change the numeral in the center of the daisy and repeat the activity.

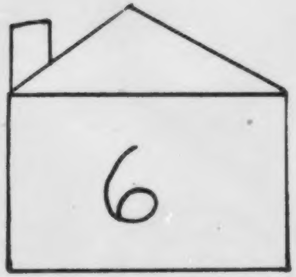
THIRD ACTIVITY FOR SKILL H

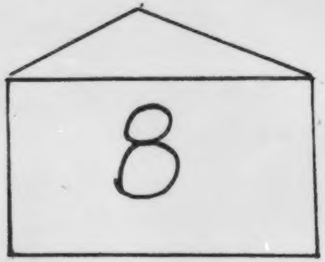
Cut out several large paper houses and write a numeral to represent a product on each. Line the houses up along the chalkboard. Distribute cards on which have been written multiplication combinations. Have the children pretend they are mail men and tell them they must deliver their cards to the proper houses. Call upon the children, one at a time, to stand, read the combination on their card, and then deliver their card to the house whose number is a product of the two factors represented on the card. Continue until all the mail has been delivered then review the factors of each of the products.

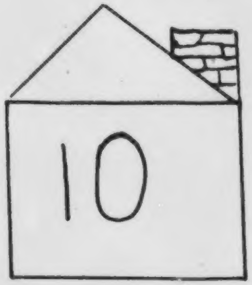
THIRD
ACTIVITY
FOR
SKILL H
(CONTINUED)











1 x 1

1 x 4

2 x 3

2 x 4

2 x 5

2 x 1

4 x 1

3 x 2

4 x 2

5 x 2

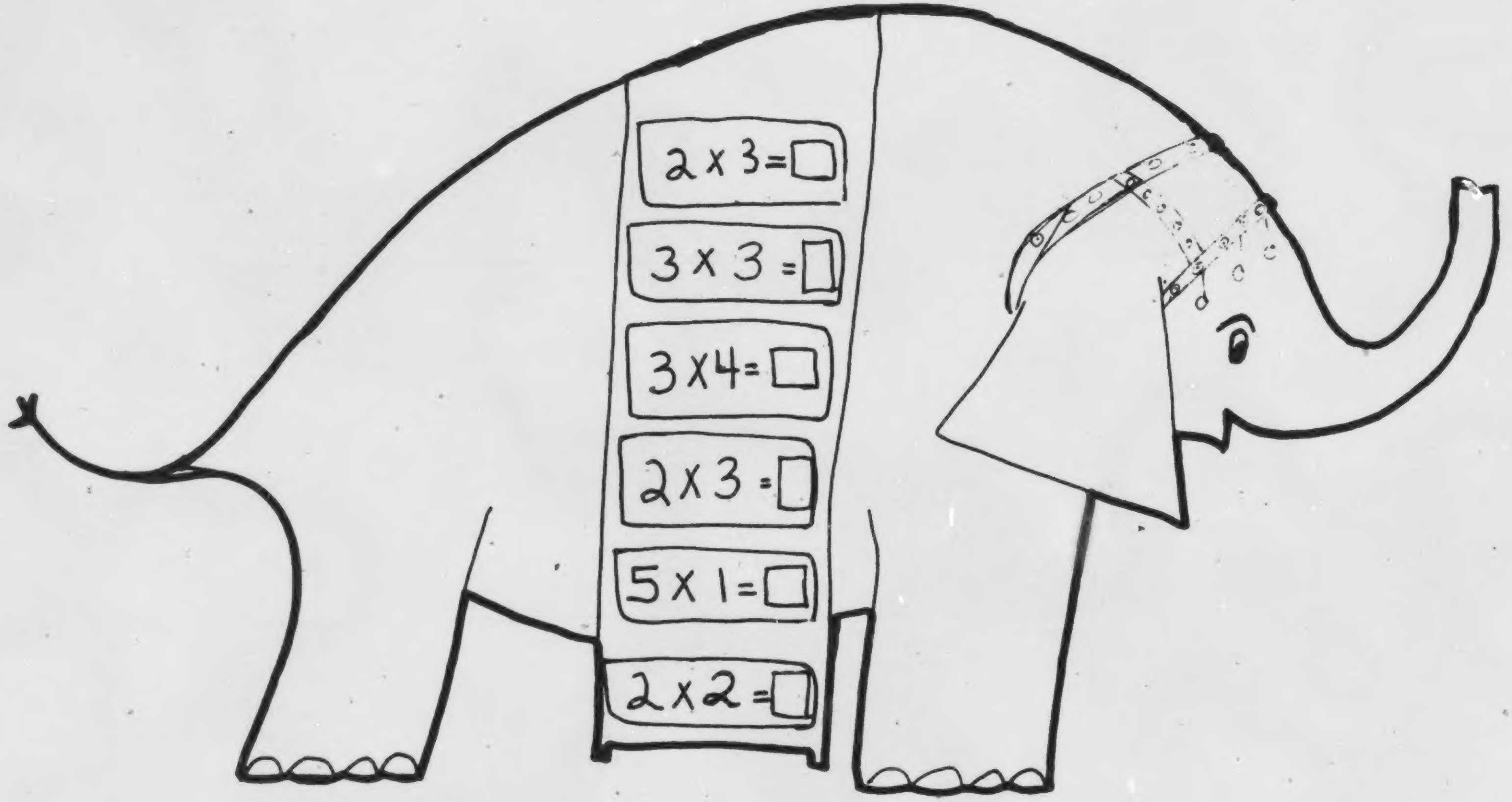
2 x 2

SKILL I: To practice basic multiplication facts involving 3 as a factor.

VOCABULARY: set of three

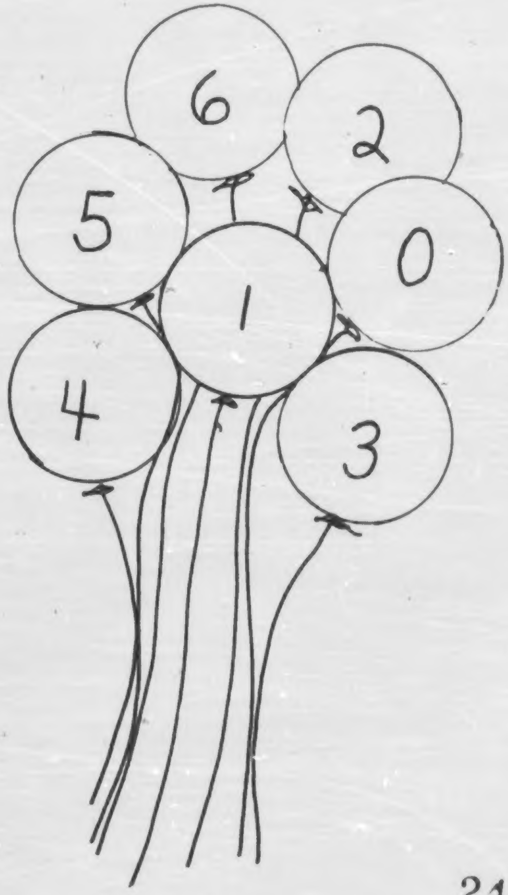
FIRST ACTIVITY FOR SKILL I	Place one set of three objects on a flannel board. On the chalkboard write ________ conjuntos de tres. Have a child fill in the blank with the numeral which tells how many sets of three he sees; and then tell how many objects there are altogether. Let another child write the multiplication equation which shows what has been learned from the set story: 1 x 3 = 3.
SECOND ACTIVITY FOR SKILL I	Place two sets of three objects on the flannel board. On the chalkboard, write _____ conjuntos de tres. Have a child tell the set story and fill in the blank with the correct numeral. Ask how many there are altogether. Have a child write the related multiplication equation on the board to show what has been learned from the set story: 2 x 3 = 6. Ask the class to use plastic numerals and other symbols at their desks to show the same equation. Ask if anyone can show another way to write a number story about the sets. Guide them to give the related addition equation: 3 + 3 = 6.
THIRD ACTIVITY FOR SKILL I	To develop an understanding of the multiplication combination 3 x 3, have a child place three sets of three objects on the flannel board. Ask another child to write on the chalkboard the related multiplication equation which tells the set story 3 x 3 = 9. Ask if anyone can write the set story in another way: Guide the students to say 3 + 3 + 3 = 9. Continue this procedure through the multiplication combinations 4 x 3 and 5 x 3.

FOURTH ACTIVITY FOR SKILL I	Ride the Elephant Draw an elephant on the board. Let a child draw steps to the top of the elephant's back. Write multiplication problems on the steps with missing factors. One child uses a pointer to help the rider up the steps.



SIXTH ACTIVITY FOR SKILL I

Have the children draw 6 large balloons on the chalkboard or cut them from colored paper and fasten them to the chalkboard. Write the numeral on each beginning with zero. Choose a number and tell the children that the number represented on each balloon must be multiplied by the number you select. For example, tell the children that each number is to be multiplied by 5. Point to each balloon in turn. The child whose turn it is must try to pop the indicated balloon by quickly telling the product of 5 and the number indicated on that balloon. If he successfully pops all six balloons he may choose a number for the next game and point to the balloons.



SKILL J: To practice basic multiplication facts with five as a factor.

VOCABULARY: Multiplication facts

FIRST ACTIVITY FOR SKILL J	Use squared paper to practice building sets of five. Have students cut off ten strips with 5 squares each. They may hold up a 5-strip and tell how many squares it has, writing the equation 1 x 5 = 5. The students may use their strips of paper to find out how many squares in two 5-strips. Encourage them to match the 5-strip with a 10-strip. They will write the equation 2 x 5 = 10. In this way they build up the sequence of equations 1 x 5 = 5, 2 x 5 = 10, 3 x 5 = 15, etc.
SECOND ACTIVITY FOR SKILL J	Have the students work with nickels to reinforce work with multiplication with a factor of 5. For example, they may use coins to answer, "What is the value of eight nickels?"

THIRD ACTIVITY FOR SKILL J

Make BINGO cards. On each square write a basic product which has five as a factor. Remember each card must be arranged differently.

5	30	15
20	10	25
35	5	40

The student leader may say "5 x 6." If a student has 30 in one of his squares, he puts a marker on it.

A student calls BINGO when he has covered three squares horizontally, vertically or diagonally.

FOURTH ACTIVITY FOR SKILL J

Have students complete number patterns like the following:

FIVE TIMES TABLE						
1	2	3	4	5	6	7
5	10					

SKILL K: To supply missing numbers in a sequence of even-odd or whole numbers.

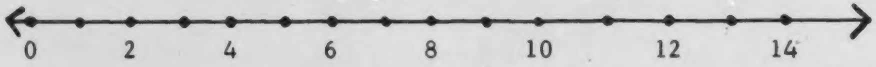
VOCABULARY:
even
odd
whole numbers

FIRST ACTIVITY FOR SKILL K

Introduce even numbers by asking students to count by 2's from 0 to 30, and write the numerals on the chalkboard. Ask the students if they know a name for numbers that have two as a factor. Say that these are even numbers. Relate this to number of objects in pairs: two pairs of shoes with no extra shoes; three pairs of shoes with no extra shoes, and so on.

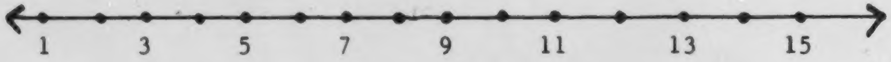
SECOND ACTIVITY FOR SKILL K

Use a number line, starting from zero and naming every second number.



THIRD ACTIVITY FOR SKILL K

Have the students count by twos from 1 to 31 and write the numerals on the chalkboard (1,3,5..31) Ask the students if they know a name for this set of numbers. (They are odd numbers). Relate this to the number of objects in pairs with an extra object: two pairs of shoes and an extra shoe, three pairs of shoes and an extra shoe, and so on. Also use a number line, starting from 1 and naming every second number.

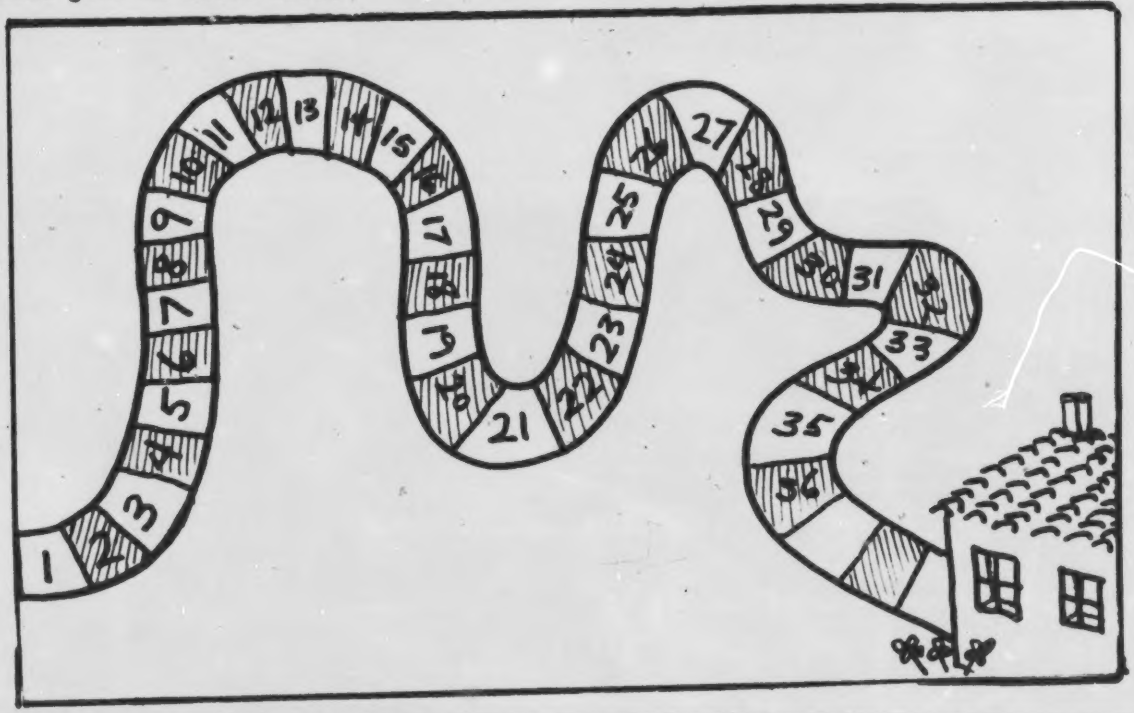


FOURTH ACTIVITY FOR SKILL K

Draw a number line from 0 to 19 on the chalkboard and have different students come to the front of the room and circle the even numbers. Then use the number line to help students see what happens when one is added to an even number or to an odd number.
Also, have the students list all the things they can see in the classroom that come in even numbers or in odd numbers: windows, doors, lights, cupboards, boots, shoes, hands, eyes, noses and so on.

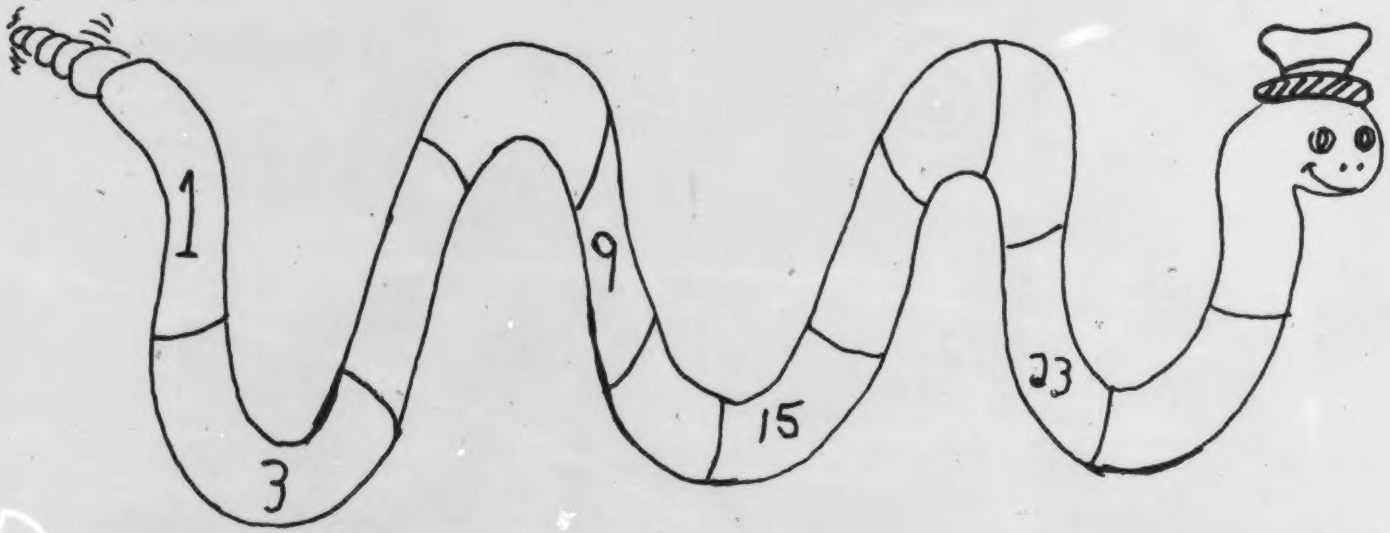
FIFTH ACTIVITY FOR SKILL K

Prepare an "Odds and Evens" game from a heavy sheet of cardboard. Color the boxes with even numbers red and with odd numbers white. The players may throw a die to make their move. Each player moves a colored button. When he throws the die, he must quickly say "odd" or "even" for the space on which his button will land. If his opponent says the word first, the opponent gets an extra move.



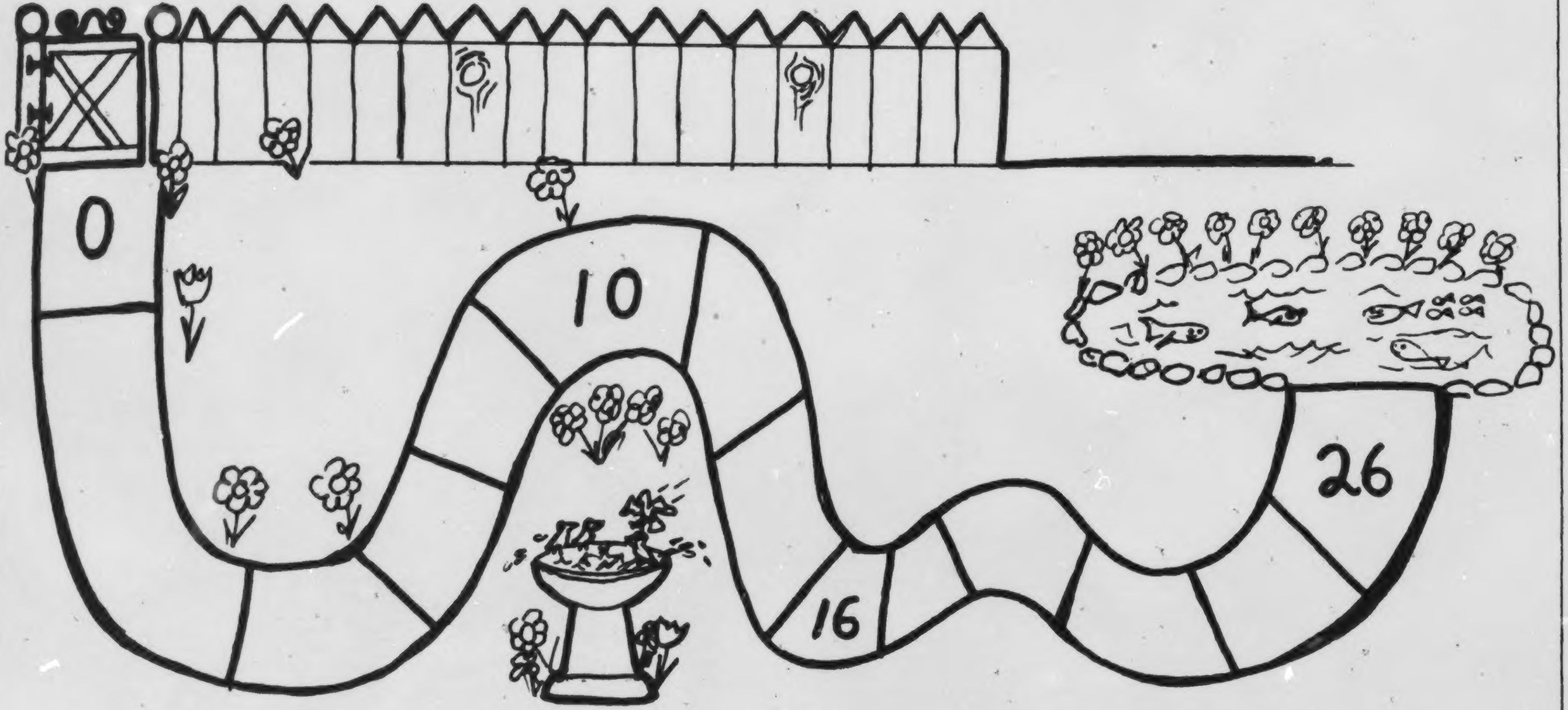
SIXTH
ACTIVITY
FOR
SKILL K

NAME THE MISSING ODD NUMBERS



SEVENTH
ACTIVITY
FOR
SKILL K

NAME THE MISSING EVEN NUMBERS



WORD PROBLEMS

1. Sara va para la tienda.
Ella compra 2 paquetes de lapices.
Cada paquete tiene 3 lapices.
¿Cuántos lapices tiene Sara? —

$$\begin{array}{r} 3 \\ \times\ 2 \\ \hline 6 \end{array}$$

2. Sara pasa por la bodega.
Ella quiere 2 cajas de chicle.
Cada caja tiene 5 chicles.
¿Cuántos chicles tiene Sara?

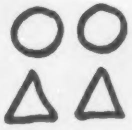
$$\begin{array}{r} 5 \\ \times\ 2 \\ \hline 10 \end{array}$$

3. Al llegar a su casa.
Sara ve 2 grupos de gemelos.
¿Cuántos niños hay por todo?

$$\begin{array}{r} 2 \\ \times\ 2 \\ \hline 4 \end{array}$$

SAMPLE MASTERY ITEMS FOR MULTIPLICATION

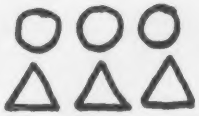
Escribe el numeral en la linea.



2 + 2 = ___

2 x 2 = ___

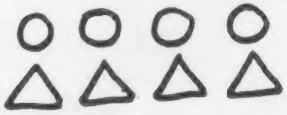
2 por 2 = ___



3 + 3 = ___

2 x 3 = ___

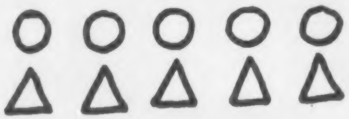
2 por 3 = ___



4 + 4 = ___

2 x 4 = ___

2 por 4 = ___



5 + 5 = ___

2 x 5 = ___

2 por 5 = ___

SKILL L: To develop the concept that division is the inverse of multiplication.
Division facts: 2,3,5.

VOCABULARY:
divide
division facts

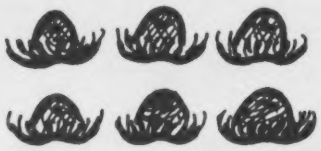
BACKGROUND

Young children use division quite naturally in everyday situations. Two children will divide a candy bar, a group of second graders will divide a bag of candy, etc. The concept of dividing can be further developed in the classroom by providing the children with a variety of simple situations involving sharing: they will find out, how many in each set, or how many sets contain a certain number of elements.

Materials needed: counting objects; shells, stones, coffee sticks, play money, beans, buttons, bottle caps, etc.

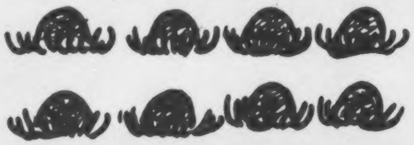
FIRST ACTIVITY FOR SKILL L

Explore with the children the relationship between multiplication and division. Put the following examples on the board. Direct the children's attention to the first exercise. Ask, ¿Cuántas hileras de pavas hay en la primera sección? ¿Cuántas pavas en cada hilera? ¿Cuánto es 2 x 3? Have the children write 6 in the blank in the multiplication sentence. Then have someone read the first question on the right.



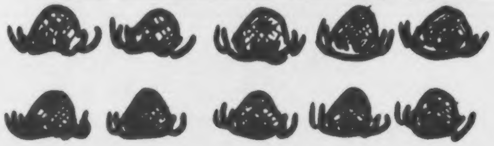
2 x 3 = ____ ¿Cuántos 3 hay en 6? ____

3 x 2 = ____ ¿Cuántos 2 hay en 6? ____



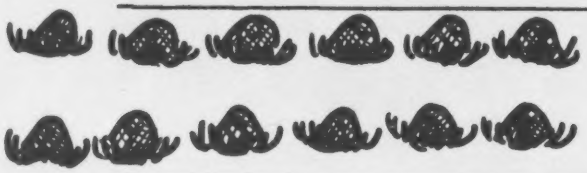
2 x 4 = ____ ¿Cuántos 4 hay en 8? ____

4 x 2 = ____ ¿Cuántos 2 hay en 8? ____



2 x 5 = ____ ¿Cuántos 5 hay en 10? ____

5 x 2 = ____ ¿Cuántos 2 hay en 10? ____

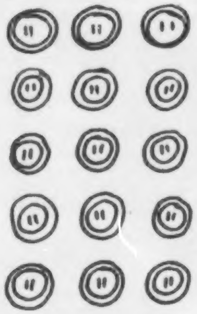


2 x 6 = ____ ¿Cuántos 6 hay en 12? ____

6 x 2 = ____ ¿Cuántos 2 hay en 12?

SECOND ACTIVITY FOR SKILL L

Have the children build the following arrays on their table using objects: beans, buttons, etc. Then have them answer these questions:



Número de hileras 5.

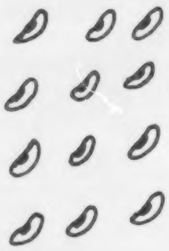
Número de objetos en cada hilera 3.

Este es un conjunto de 5 por 3.

Este conjunto tiene 15 miembros.

¿Cuántos 5 en 15 ? 3

¿Cuántos 3 en 15 ? 5



4 hileras.

3 objetos en cada hilera.

12 miembros en el conjunto.

Ecuación: 4 x 3 = 12.

¿Cuántos 4 en 12 ? 3

¿Cuántos 3 en 12 ? 4

SKILL M: To introduce the division frame and the division sign.

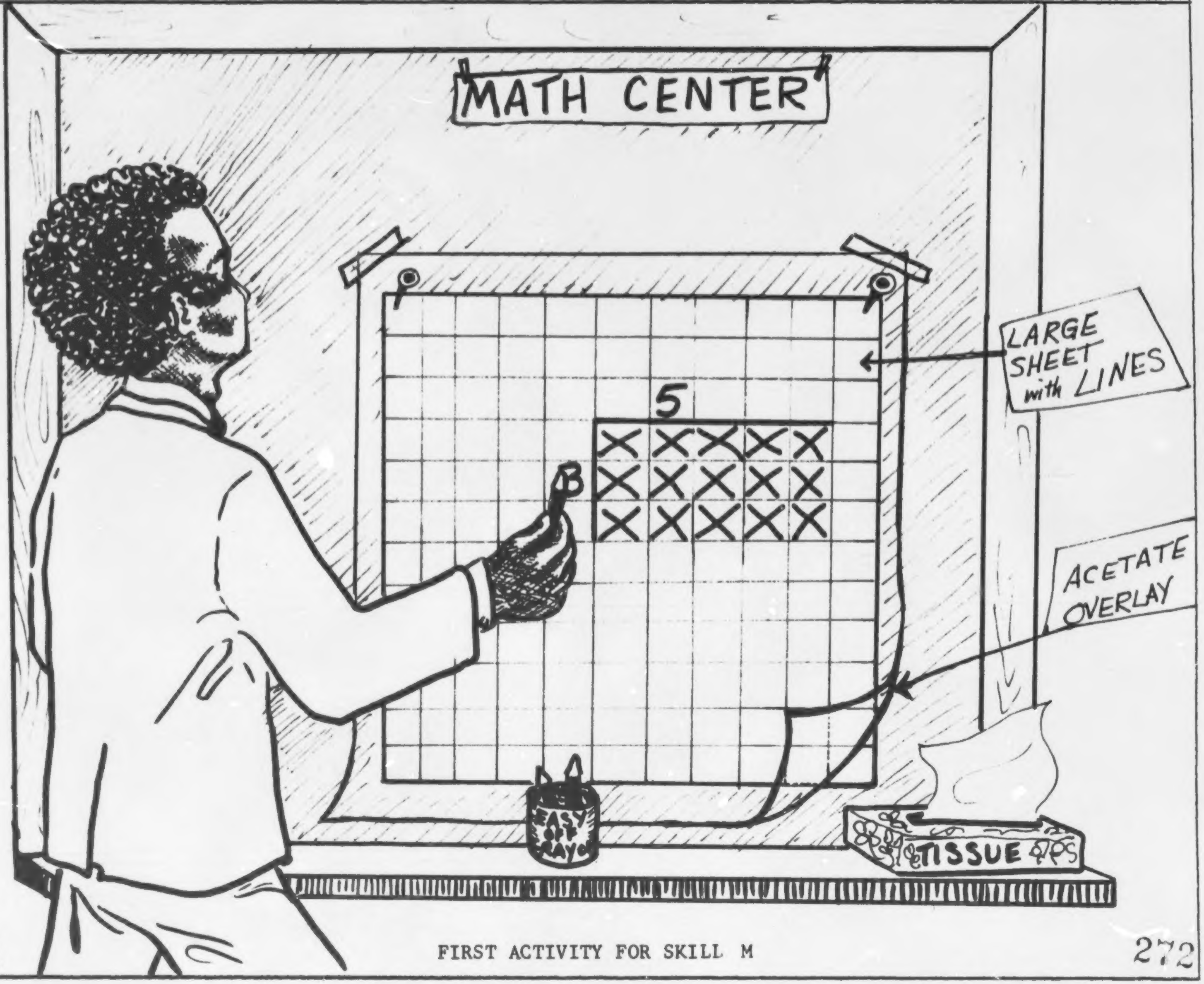
VOCABULARY: division frame ⌈
division sign ÷

BACKGROUND

Division is usually expressed by a division frame (⌈). The children should have a great deal of experience with the division frame before the division sign (÷) is introduced.

Materials needed: graph paper for the children, large sheet of paper 18" by 24" (draw lines like on the graph paper (for demonstration use.), one large sheet of acetate, 18" by 24" (this can usually be obtained at a store that sells contact paper). This is used as an overlay for your 18" by 24" graph paper. If "easy off" crayons are used, it can easily be erased with a tissue. Also needed: a pegboard and glue.

FIRST ACTIVITY FOR SKILL M	The teacher prepares on the large sheet of graph paper arrays (using the division frame) that the children can copy on their graph paper. As the children do these activities they will be able to see and understand the relationship of multiplication and division.


MATH CENTER
5
3
LARGE SHEET with LINES
ACETATE OVERLAY
EASY OFF CRAYO
TISSUE

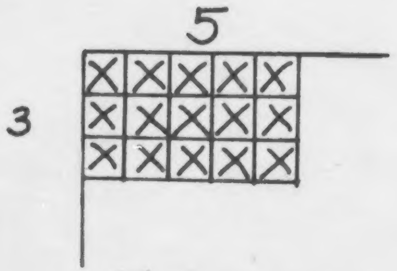
271

FIRST ACTIVITY FOR SKILL M

272

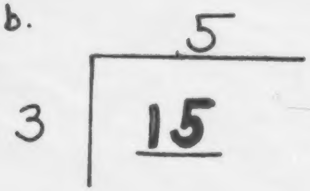
FIRST ACTIVITY FOR SKILL M

a



The array

b.



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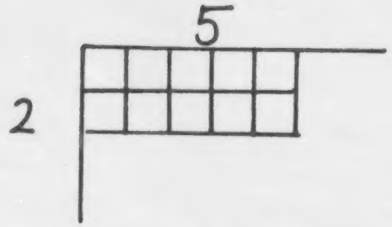

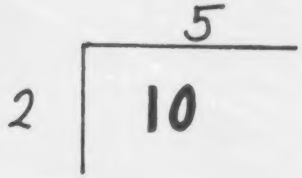

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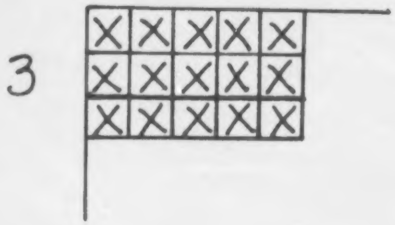
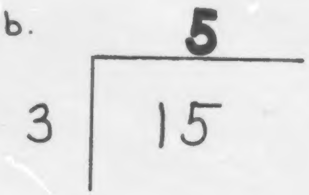


b.



Frame b is filled in to show the missing factor.

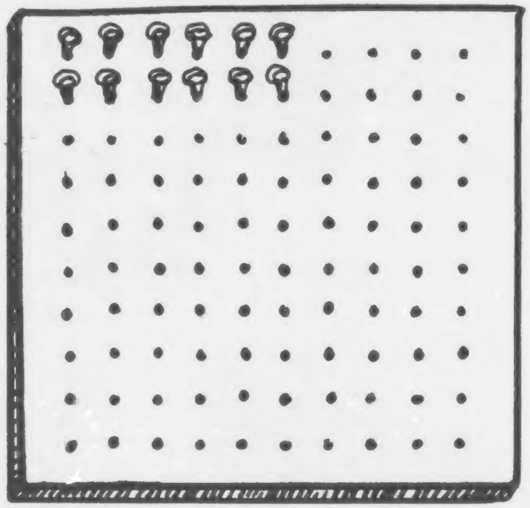
SECOND ACTIVITY FOR SKILL M

The teacher can put a multiplication problem on the board. For example:

$$2 \times 6 = \underline{\qquad}$$

Then a child can volunteer to place an array of pegs on the pegboard to demonstrate this problem and to find the product. Another child can volunteer to fill in the product on the board. For example:

$$2 \times 6 = \underline{12}$$



Then the teacher can set up the equivalent division problem with the product and a missing factor not present. For example:

$$2\overline{)\qquad}$$

A third child should volunteer to fill in the product and a fourth child should volunteer to fill in the missing factor. For example:

$$\begin{array}{r} 6 \\ 2\overline{)12} \end{array}$$

THIRD ACTIVITY FOR SKILL M

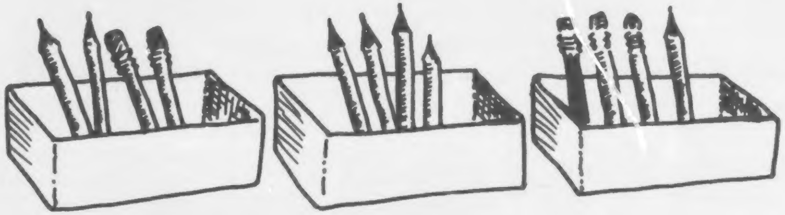
The teacher should find approximately six shoe boxes and approximately twenty-five counters such as pencils, rocks or shells. The teacher can write a problem on the board. For example:

$$3\overline{)12}$$

One child can be asked to take a number of boxes equal to the given factor, in this case three.

Then another child can be asked to take a number of counters equal to the product (in this case, 12) and to divide them into the boxes so that there is an equal number of counters in each box (in this case, four).

A third child can be asked to record the answer or missing factor on the board (4) after finding out how many counters are in each box.



FOURTH ACTIVITY FOR SKILL M

Put some division examples on the chalkboard; using graph paper have the children show an array for each problem. Then the children can record the answer or missing factor.

$\begin{array}{r} 4 \\ 2\overline{)8} \end{array}$ $3\overline{)18}$ $5\overline{)25}$

X X X X
X X X X

FIFTH ACTIVITY FOR SKILL M

Explain to the children that ÷ is another sign for division, as well as the $\overline{)}$ frame with which they are now familiar.

On the board show them several problems written both ways and explain how they both are read:

For example:

$$\left.\begin{array}{l} 2\overline{)6} \\ 6 \div 2 \end{array}\right\} \text{"6 dividido entre 2"}$$

SIXTH ACTIVITY FOR SKILL M

To reinforce use of both division signs give some examples of one sign on the board and have volunteers show how to write and read aloud the alternate sign for the same problem.

For example:

$2\overline{)4}$ or $4 \div 2$

$3\overline{)9}$ or $9 \div 3$

teacher student volunteer

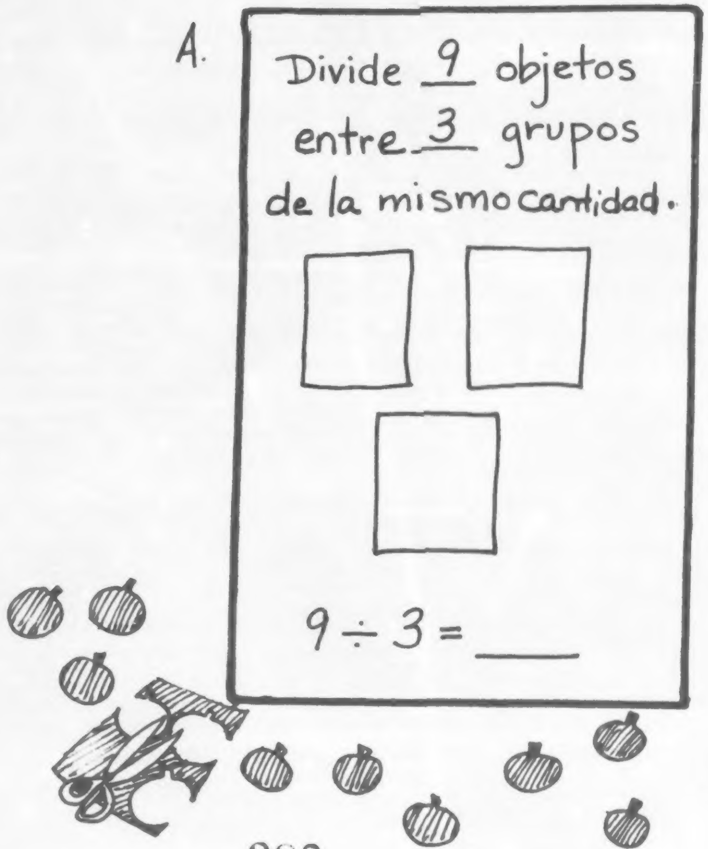
SEVENTH ACTIVITY FOR SKILL M This worksheet might be used to give the students practice distinguishing the two division signs and to aid the teacher in discovering who needs more help.

Example: $2\overline{)6}$	$6 \div \underline{2}$
$5\overline{)10}$	$10 \div \_\_\_$
$3\overline{)15}$	$15 \div \_\_\_$
$4\overline{)\_\_}$	$16 \div 4$
$7\overline{)\_\_}$	$14 \div 7$

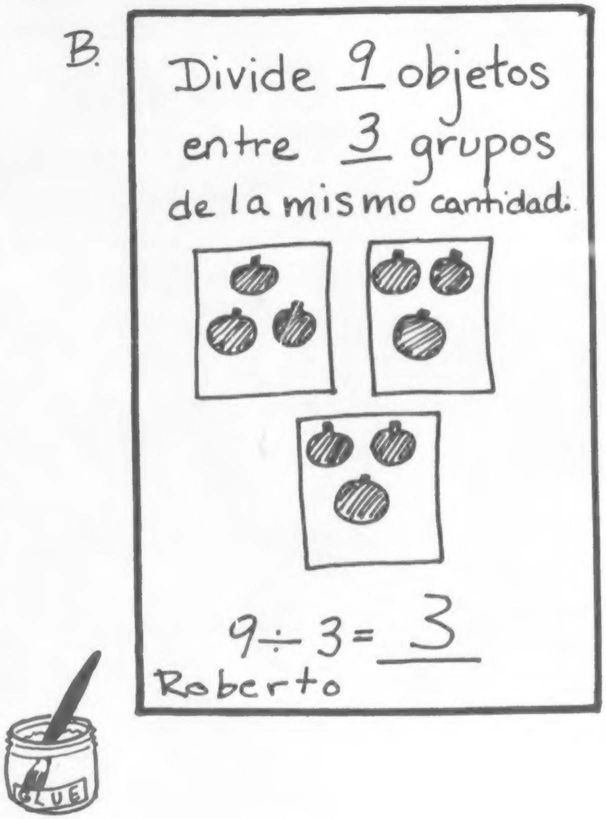
$2\overline{)8}$	$\_\_ \div \_\_$
$3\overline{)12}$	$\_\_ \div \_\_$
$3\overline{)9}$	$\_\_ \div \_\_$
$\_\_\overline{)\_\_}$	$10 \div 2$
$\_\_\overline{)\_\_}$	$18 \div 2$

EIGHTH ACTIVITY FOR SKILL M	The teacher can make up various work cards for the children using the ÷ sign. The children will cut out the appropriate number of shapes and glue them on their papers in the boxes.

A.

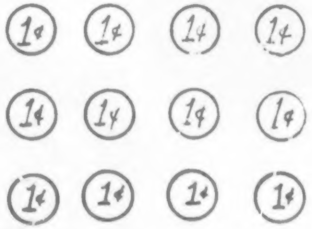

Divide 9 objetos
entre 3 grupos
de la mismo cantidad.
9 ÷ 3 = ____

B.


Divide 9 objetos
entre 3 grupos
de la mismo cantidad.
9 ÷ 3 = 3
Roberto
GLUE

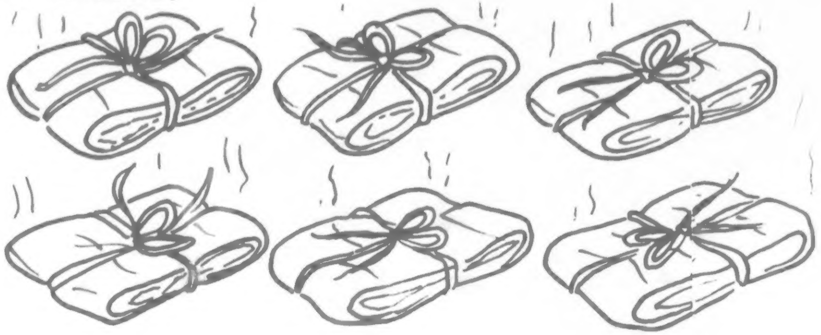
WORD PROBLEMS: DIVISION

1. La familia Ortiz tiene 3 hijos. Ellos van para la tienda a comprar dulces. Tienen 12 centavos. ¿Cuántos centavos le tocará a cada uno? Escribe tú contestación.



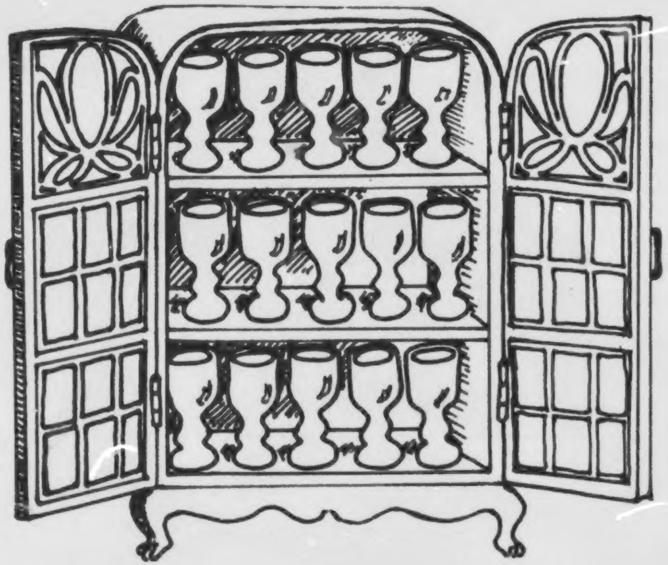
_______ centavos.

2. La mamá de Juan, Ana, y Maria cocinó 6 pasteles para el almuerzo. ¿Cuántos pasteles le tocará a cada uno? Escribe tú contestación.



_______ pasteles

3. La mamá de Ana le pidió que guardara 15 vasos en el chinero de 3 gavetas. Cada gaveta debe tener el mismo número de vasos. ¿Cuántos vasos debe colocar Ana en cada gaveta?



_________ vasos

DIVISION - TEST

1. Has círculos para dividir las x's entre dos conjuntos que son igual en número.

x x
x x
x x
x x

2. Has círculos para dividir las x's en 3 conjuntos que son igual en número.

x x x
x x x
x x x
x x x

3. Pón una x en la incorrecta.

$\begin{array}{r}4\\3\overline{)12}\end{array}$ $\begin{array}{r}7\\2\overline{)16}\end{array}$ $\begin{array}{r}3\\5\overline{)15}\end{array}$

4. Divide:

$3\overline{)6}$ $2\overline{)16}$ $5\overline{)25}$ $8 \div 2 =$ ___ $27 \div 3 =$ ___ $20 \div 2 =$ ___

5. Mamá hizo 5 platos de pudín. Ella tenía 20 pasas. Ella le echó a cada plato el mismo número de pasas. ¿Cuántas pasas le echó mamá a cada plato de pudín?

MASTERY TEST ITEMS

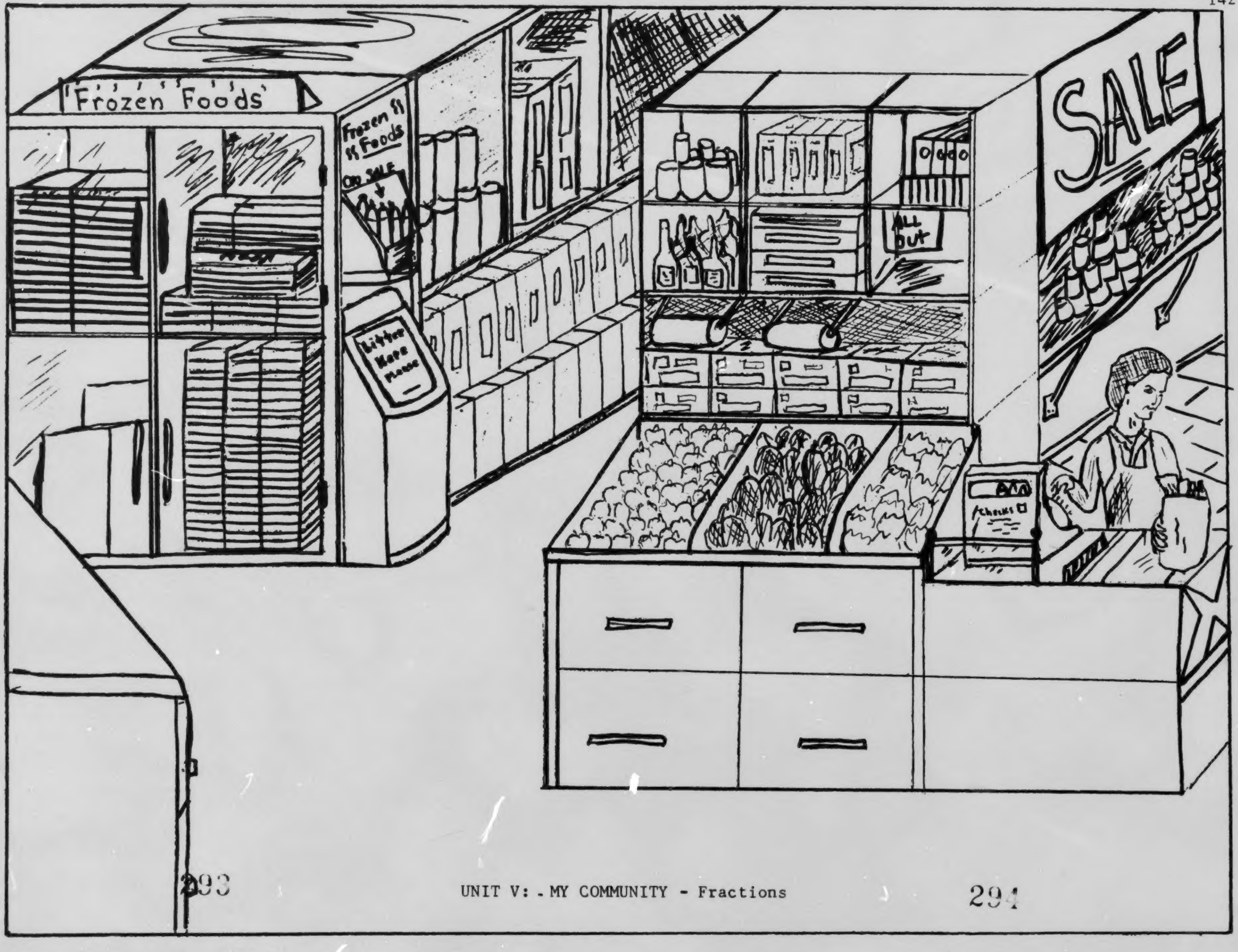
1. $2\overline{)12}$ 2 x 12 = 12 ÷ 2 =

2. $3\overline{)9}$ 3 x 9 = 9 ÷ 3 =

3. $5\overline{)20}$ 5 x 20 = 20 ÷ 5 =

4. $2\overline{)6}$ 2 x 6 = 6 ÷ 2 =

5. $3\overline{)18}$ 3 x 18 = 18 ÷ 3 =


Frozen Foods
Frozen $$ Foods On Sale
Litter Here Please
ALL OUT
SALE
Checks

UNIT V: MY COMMUNITY- Fractions

SKILL A: To identify one-half of a region.

SKILL B: To identify shapes that are symmetrical about a line.

SKILL C: To identify one-half of the objects in a set.

SKILL D: To determine the numerator and denominator for fractions.

SKILL E: To identify 1/4 of a region and read "one-fourth" and read and write 1/4.

SKILL F: To identify 3/4 of a region or 3/4 of the objects in a set.

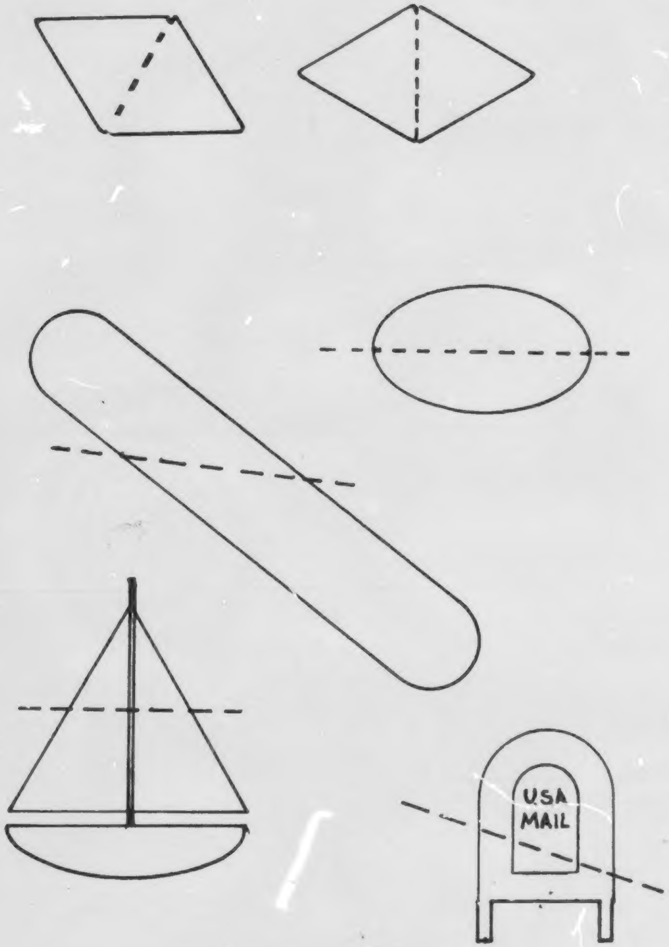
SKILL G: To shade a number of parts of a region or set to match a given fraction.

SKILL H: To write the numeral for the number of indicated parts of a region or set.

SKILL A: To identify one-half of a region.

VOCABULARY: one-half
region

FIRST ACTIVITY FOR SKILL A	Give each student a paper with an outline of a rectangle on it. The students can completely fill in the inside of the rectangle with a color. Then they can cut out the rectangle. This rectangle can then be called a region. Ask the students to fold their rectangle or region in half so that two equal parts are formed. Have them cut along the fold to form two regions. Each student can hold up one of the two halves. The teacher can explain that each of these parts is one of two halves, or one-half of the original region and that these can be represented by a special numeral ½ which is called a fraction.
SECOND ACTIVITY FOR SKILL A	Cut various objects, such as sheets of paper, oranges, sandwiches, and candy bars into two parts - some should be cut exactly in half and others cut into unequal parts. Have the students determine which of the objects have been cut in half and which not.



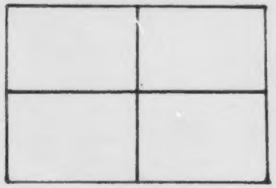
THIRD ACTIVITY FOR SKILL A

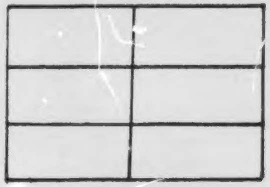
Draw on the chalkboard several geometric shapes. Use a dotted line to cut each into 2 parts; divide some into even halves and others into merely two parts.

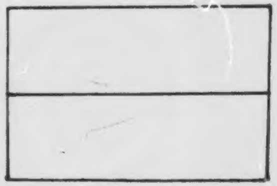
Ask the students to write ½ under any drawings that show ½. If a student thinks the drawing does not show ½, he/she can erase the dotted line and place it where he/she thinks it should be. Another student can then come forward, study this drawing, and if he feels it shows ½, label each part ½.

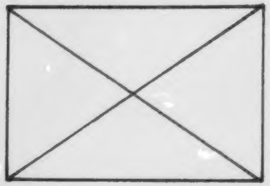
FOURTH ACTIVITY FOR SKILL A

Divide rectangles into an even number of parts of the same size and ask the students to shade one-half of each region.

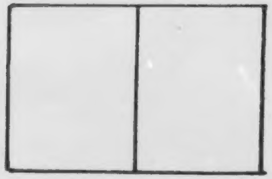


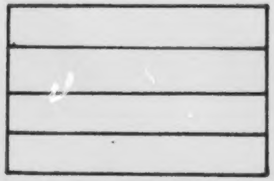


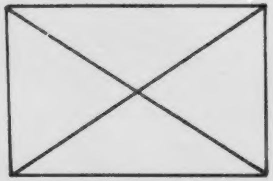


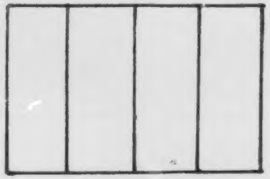


Or: Have the students shade one-half of each square region showing different ways of halving the region.

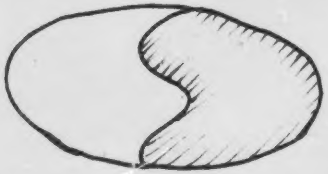


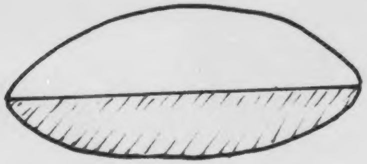


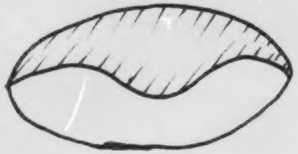


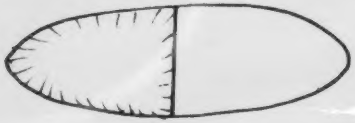


Also: Give the students pictures of shapes and challenge them to color one-half in many ways using their imagination, as here:







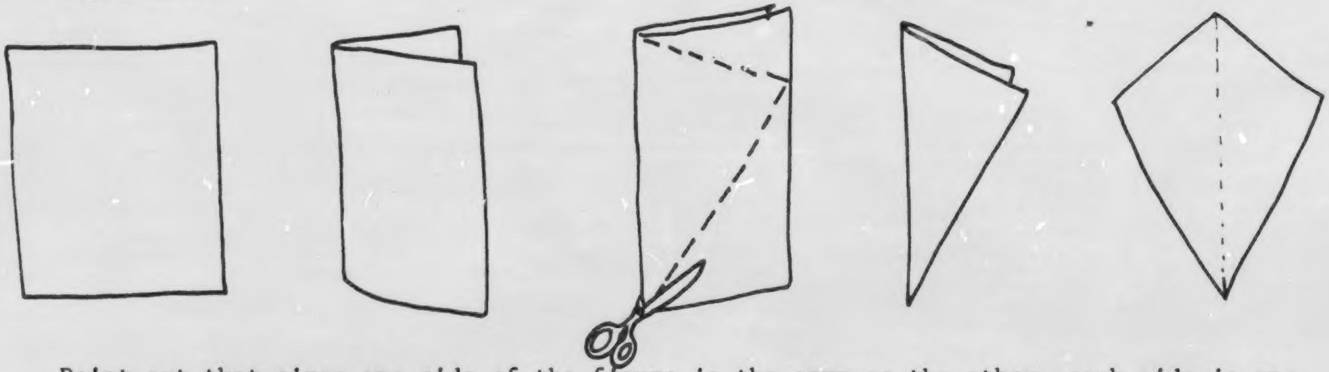


SKILL B: To identify shapes that are symmetrical about a line.

VOCABULARY:
symmetry
matching sides

FIRST ACTIVITY FOR SKILL B

Introduce the concept of symmetry by having the students fold pieces of paper and cut out patterns along the fold. When the cut out is unfolded lead students to see that the sides match.



Point out that since one side of the figure is the same as the other, each side is one-half of the total figure. Supply students with cut outs of square, circular, rectangular and triangular regions and have them fold the cut outs so the sides match. Draw similar figures on the board and have students draw lines on these figures to indicate the fold lines.

SECOND
ACTIVITY
FOR
SKILL B

Play the Ink Blot Game

Show students how to place a drop of water color onto a sheet of paper. Then fold the paper vertically through the drop creating a symmetrical design. Have the students make their own and make up names for the pictures.

THIRD
ACTIVITY
FOR
SKILL B

Play the Match Me Game

Have the students make a number of symmetrical shapes and then cut the shapes in half along the fold line. Mix the shapes together and place in a box. Working in pairs, students can play Match Me. The student in a pair who matches the most shapes in a given time wins.

FOURTH
ACTIVITY
FOR
SKILL B

Play Concentration

- Draw or paste symmetrical shapes on cards and then cut in half.
- Shuffle and place all cards face down in three rows of 4 cards each.
- Spread out on a table top.
- Each student in order, turns up two cards at a time.
- If the cards match, the student keeps the pair and has a second turn.
- If they do not match, the student replaces them face down and the next player tries.
- The one with the most pairs is the winner!

SKILL C: To identify one-half of the objects in a set.

VOCABULARY: one-half
sets

FIRST ACTIVITY FOR SKILL C

Place two pictures of apples on the display board, one red, the other green. Ask "¿Cuantas manzanas son rojas?" Write 1 on the chalkboard. Ask "¿Cuántas manzanas hay por todo?" Write 2 on the chalkboard beneath the 1. "¿Cuántas de las manzanas son rojas?" Underline the 1, so that it shows ½. Ask, "¿Una de cuántas manzanas son roja?" When you receive the answer dos, point to the 2 on the chalkboard, saying "Una de las dos manzanas es roja." Repeat this procedure several more times using other objects, such as two balls (one red, one blue), four ice creams, etc...

SECOND ACTIVITY FOR SKILL C

Give each child a set of counting objects containing an even number. These could be marbles, paper clips or blocks. Have the children divide their set into two equal groups. Explain that each of the two groups is one-half of the whole set.

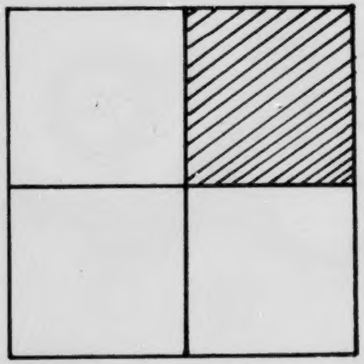
SKILL D: To determine the numerator and denominator for fractions.

VOCABULARY:
Numerator
Denominator

FIRST ACTIVITY FOR SKILL D

Explain that the number of equal parts in a whole is called a denominator and that the denominator is written in the bottom part of the fraction.

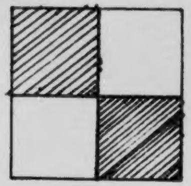
For the following types of diagrams have the children count the total number of equal parts in the whole diagram and place it in the bottom part of the fraction. It should be explained that the number of shaded parts is given in the top of the fraction (in this case one) and is called the numerator.



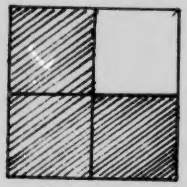
$$\frac{1}{4}$$

Have the children determine the denominators for the fractions representing the shaded parts of each of the following diagrams. The children only need to count the total numbers of equal parts in each diagram.

FIRST ACTIVITY FOR SKILL D



$\frac{2}{4}$



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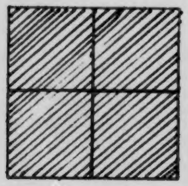

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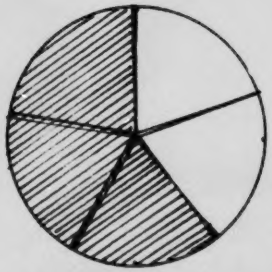
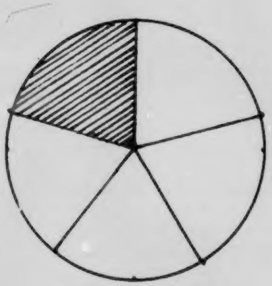
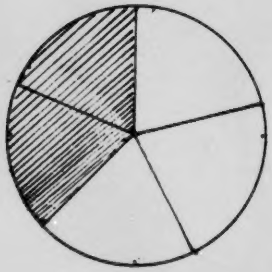


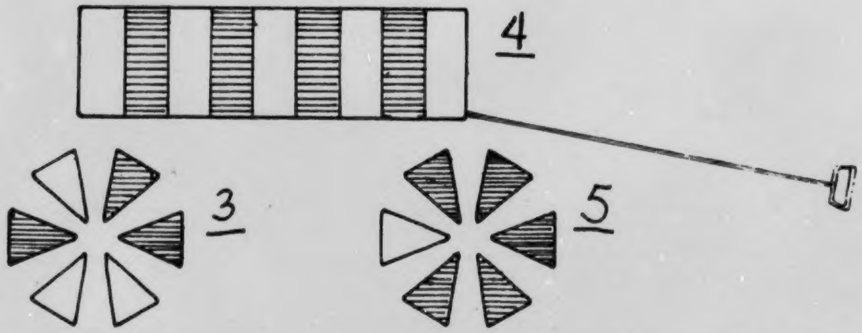
3



1



2



4

3

5

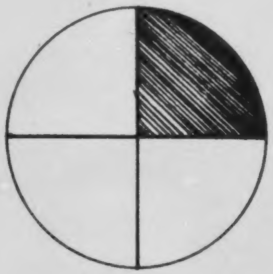
SECOND ACTIVITY FOR SKILL D

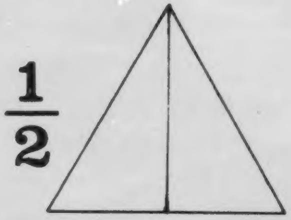
Ask seven children - four girls and three boys - to come to the front of the room. ¿Cuántos estudiantes hay? Write 7 on the board. ¿Cuántos de estos estudiantes son niñas? Then write 4 and a fraction bar above the 7. ¿Qué indica esta fracción? The answer, of course, is that four out of seven of the children are girls. Vamos a escribir una fracción para el número de niños en este grupo. ¿Cuántos estudiantes hay? Write another seven on the board. ¿Cuántos son niños? Write the 3 and a fraction bar above the seven. Continue the activity with different numbers.

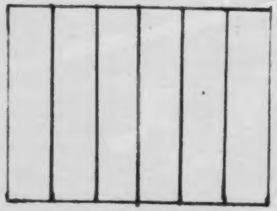
THIRD ACTIVITY FOR SKILL D

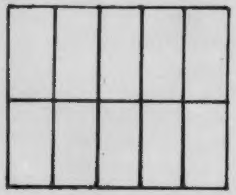
Write this activity on the chalkboard. Have a child read the question. Then have the class look at the first example. ¿Por qué está escrito el numeral 4 en la parte baja de esta fracción? ¿Cuántas partes del círculo son negras? ¿Cuántas no son negras? ¿Por qué está el numeral 1 sobre la línea? Help them with the next fraction. ¿Cuántas partes tiene? ¿Cuántas partes no son negras? As soon as they are able, have the children work alone. When everyone has finished, discuss the fractions.

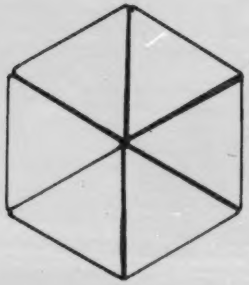
THIRD ACTIVITY FOR SKILL D

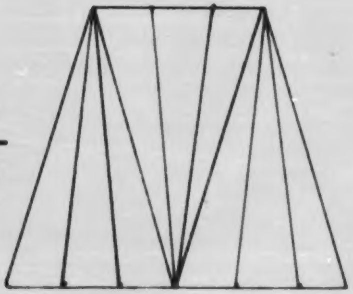

$\frac{1}{4}$

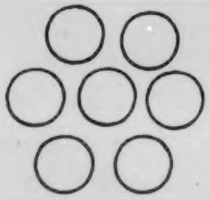

$\frac{1}{2}$

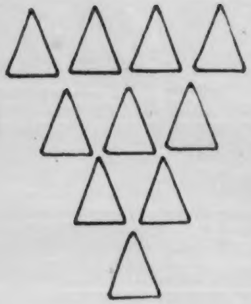

$\frac{5}{6}$

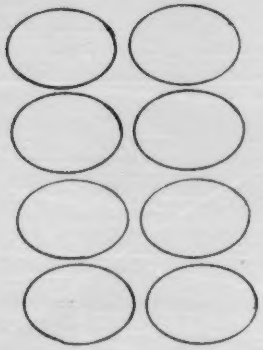

$\frac{5}{10}$


$\frac{2}{6}$


$\frac{3}{9}$


$\frac{4}{7}$


$\frac{6}{10}$


$\frac{3}{8}$

SKILL E: To identify one-fourth of a region, read "one-fourth" and read and write ¼.

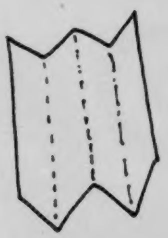
VOCABULARY: one-fourth

FIRST ACTIVITY FOR SKILL E

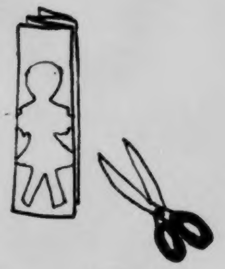
Pass out two sheets of paper to each student, telling the students to leave one sheet on their desks. Demonstrate how to fold the other, first horizontally and then vertically, matching the edges. Then have the students cut along the folds to give four parts of the same size and shape. Tell them to place the pieces on the whole sheet and then ask how many pieces cover the whole sheet. Ask what part of the whole sheet each small piece is. The children should reply "una quarta parte." Have them write ¼ on each small piece and 1 on the large sheet. Ask how many fourths are left if they remove one-fourth (three-fourths). Ask how many fourths are left if they take away two-fourths. Ask how many fourths are left if they take away three-fourths (one-fourth).

SECOND ACTIVITY FOR SKILL E	Have the students cut pictures from magazines and mount them on cardboard. These can be cut into fourths and placed into envelopes. When the students have free time, they can put the pieces together to form the original picture. They will see how many pieces are needed to form the whole picture as well as the fact that each piece is ¼ of the original.
THIRD ACTIVITY FOR SKILL E	Pass out a piece of paper folded in fourths to each student. Have each student color each fourth a different color and then write ¼ on each part.

a.



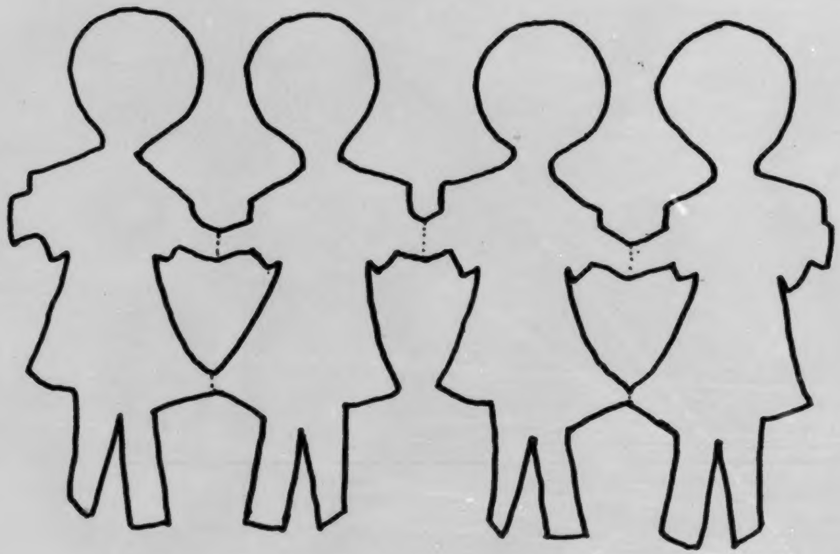
b.



FOURTH ACTIVITY FOR SKILL E

Let the children cut paper dolls from a piece of paper that has been folded in fourths. If the hands at the folded edge are not cut, the dolls will be joined and can be opened to show one-fourth of a set of four.

c.



SKILL F: To identify 3/4 of a region.

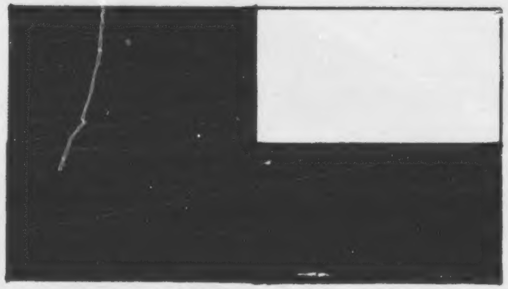
VOCABULARY: three-fourths

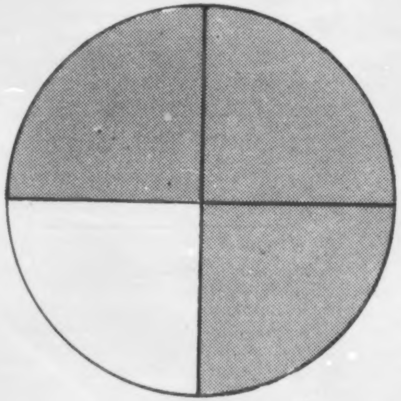
FIRST ACTIVITY FOR SKILL F

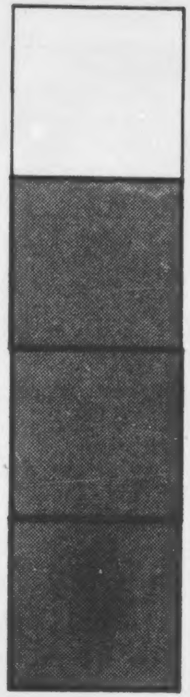
Draw a large rectangle on the chalkboard and ask a student if he can draw lines to show fourths. Then ask the students how many parts the rectangular region has, and what fraction names each part of the region (¼). Give the student a piece of colored chalk and ask him if he can draw a colored ring around three-fourths of the region. Point to the one part and ask what fraction this is of the whole. When the students reply one-fourth write ¼ in that part. Now ask how many fourths there are inside the colored ring, and write 3 on the chalkboard. Ask what fraction names the parts inside the colored ring and when the students reply three-fourths complete the fraction 3/4, stressing that we write 3 over 4 because we have 3 out of 4 parts of the whole rectangular region.

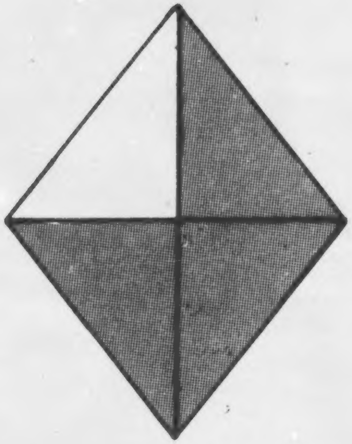
SECOND
ACTIVITY
FOR
SKILL F

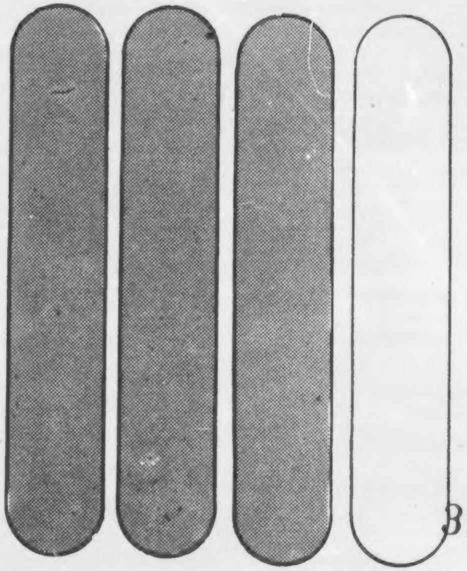
MARCA LA FIGURA QUE ENSEÑA 3/4











SKILL G: To identify the number of parts of a region or set to match a given fraction.

FIRST ACTIVITY FOR SKILL G

Have five children come to the front of the room. Then write the fraction 2/5 on the board. "¿Quiero que esta fracción nos diga cuantos niños tienen sombreros? ¿Cuántos niños deben ponerse sombreros?" Give two children hats. "¿Qué fracción nos dice cuántos niños no tienen sombreros?" Write 3/5 on the board. Then have these children sit down, and call for 6 other children to come to the front of the room. Write 5/6 on the board. "¿Quiero que esta fracción diga cuántos de estos niños están parados? ¿Cuántos niños deben quedarse sentados?" Have the class say the names of the children who should sit down. Continue using other examples.

SKILL H: To cut real objects into fractional parts and show 1/2, 1/3, 1/4, and 1/5 of something.

FIRST ACTIVITY FOR SKILL H

Request that each child bring to school an apple, orange, candy bar, sandwich, or large cookie. You can conduct this activity during snack or lunch time. Ask each pupil which he would like his food cut into: halves, thirds, fourths, or fifths. When he chooses, ask how many pieces he will get. Have him cut the item and help him if necessary. Show the pieces to the class and then let the pupil eat the food.

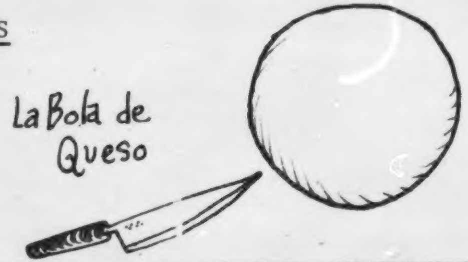
SECOND ACTIVITY FOR SKILL H

Ask the children to bring to school items that can easily be divided in 2 - 5 equal parts - nuts, candy, marbles, cookies, bananas, and so forth. After you have separated the children into small groups, ask them to show you ½ of something. Let the group work with the objects they have brought and decide what to show. Repeat for 1/3, 1/4, and 1/5.

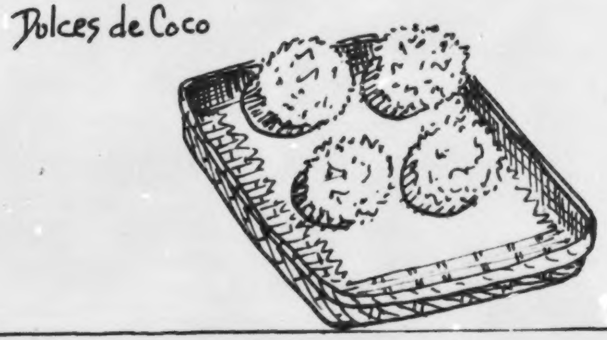
THIRD ACTIVITY FOR SKILL H

Assign to each group of 4 children an object to mark into halves, thirds, fourths, or fifths. Such objects could be a window, the chalkboard, the floor, a portion of a wall, a desk or table top, a chair, and so forth.

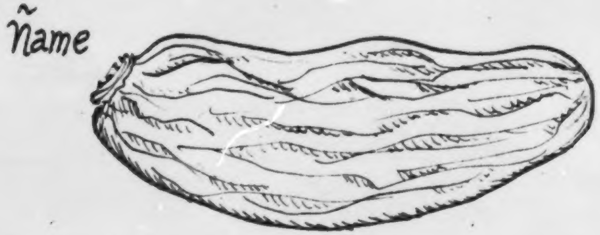
WORD PROBLEMS: FRACTIONS



1. La bodega de Don Manuel está bien surtida.
   Tiene quesos, dulces de coco y viendas.
   El queso blanco viene en bolas.
   Doña Ana quiere un $\frac{1}{2}$ de la bola de queso.
   Marca la porción que Don Manuel tiene que cortarle.

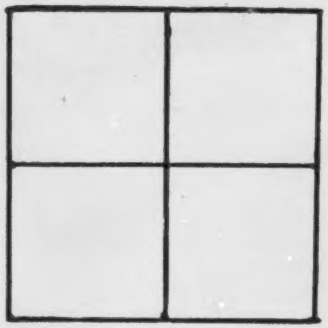


2. Los sobrinos de Doña Ana quieren dulce de coco.
   En la tienda solo hay cuatro dulces de coco.
   Doña Ana compra dos dulces de coco.
   Marca la porción que le quedan a Don Manuel.

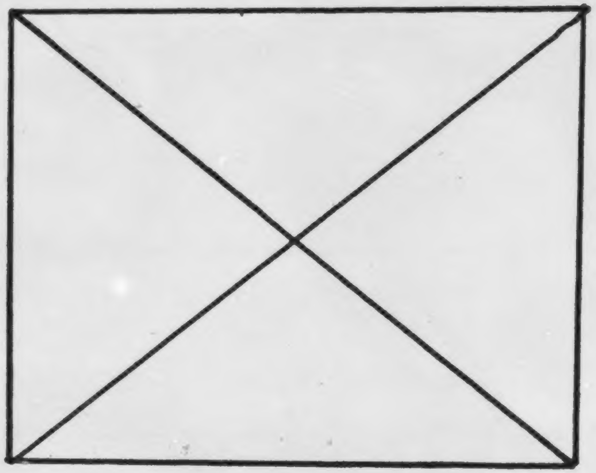


3. Doña Ana quiere comprar vianda.
   Ella le pide a Don Manuel lo siguiente:
   $\frac{1}{2}$ pedazo de vianda.
   Marca la porción que ella quiere.

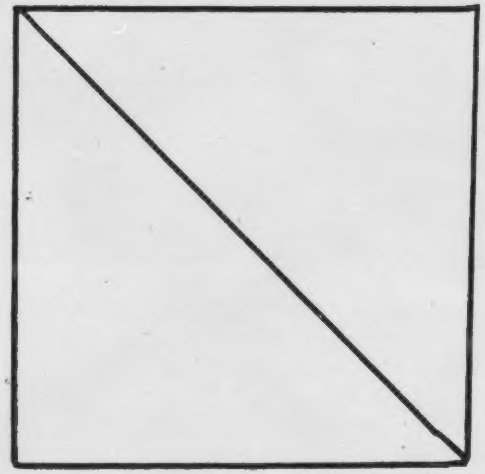
Marca las partes de estas fracciones en las figuras.



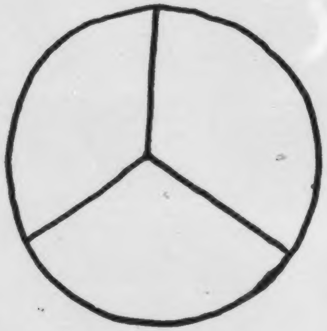
$\frac{2}{4}$



$\frac{1}{4}$



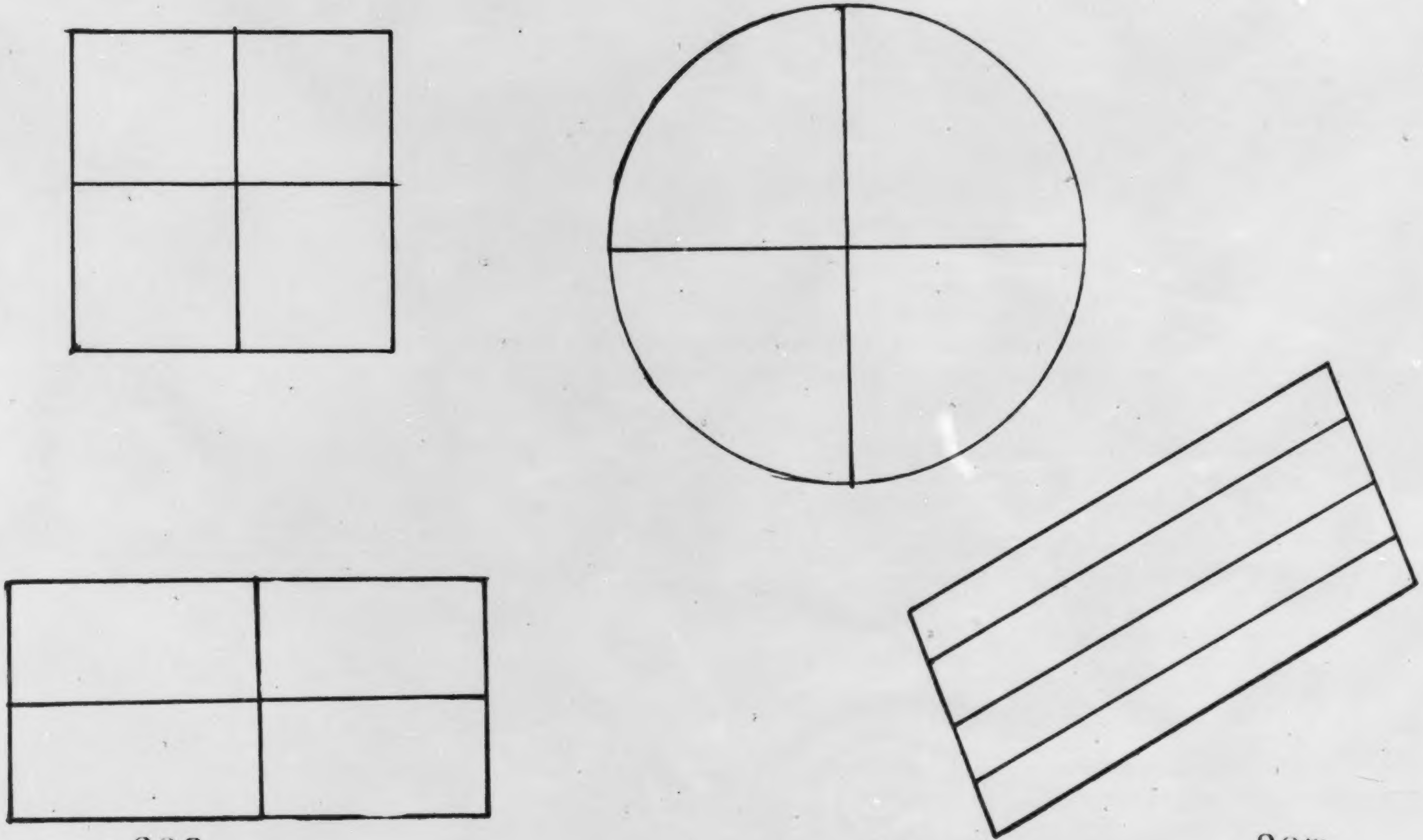
$\frac{1}{2}$

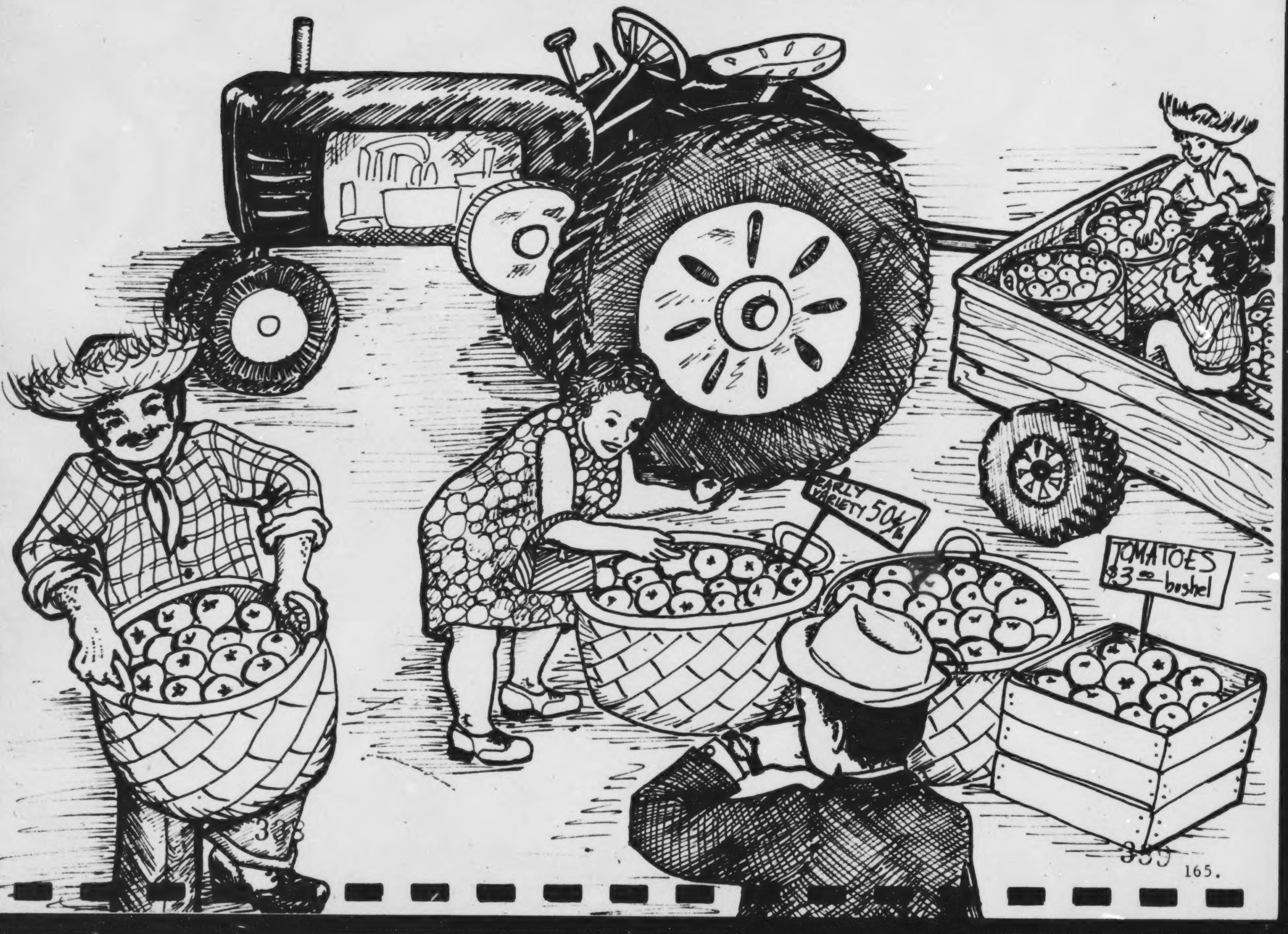


$\frac{1}{3}$

SAMPLE MASTERY ITEMS

Sombrea un cuarto de cada figura.




EARLY VARIETY 50¢/lb
TOMATOES $3.00 bushel

UNIT VI: TRANSPORTATION – Time and Money

SKILL A: To understand the concrete meaning of time, progressing into the abstract meaning of time (clock time).

SKILL B: To prepare the children for reading the minutes on a clock.

SKILL C: To read minutes after the hour.

SKILL D: To tell time on the hour.

SKILL E: To tell time at five minute intervals.

SKILL F: To read the number of minutes before the hour.

SKILL G: To tell the number of minutes past or after and before or to the hour.

SKILL H: To recognize that a quarter of an hour means ¼ of an hour or 15 minutes.

SKILL I: To read the calendar and to understand days, weeks, and months.

SKILL J: To identify and match the numerical value of coins: pennies, nickels, quarters and half-dollars.

SKILL K: To identify a collection of coins: pennies, nickels, dimes, quarters, and half-dollars using the cent sign (¢).

SKILL L: To identify the coins needed to purchase items (e.g., articles in a classroom store).

SKILL M: To identify two sets of coins that are equal in value.

SKILL N: To complete an addition table to find the sums using money.

SKILL A: To understand the concrete meaning of time, progressing into the abstract meaning of time (clock time).

VOCABULARY:

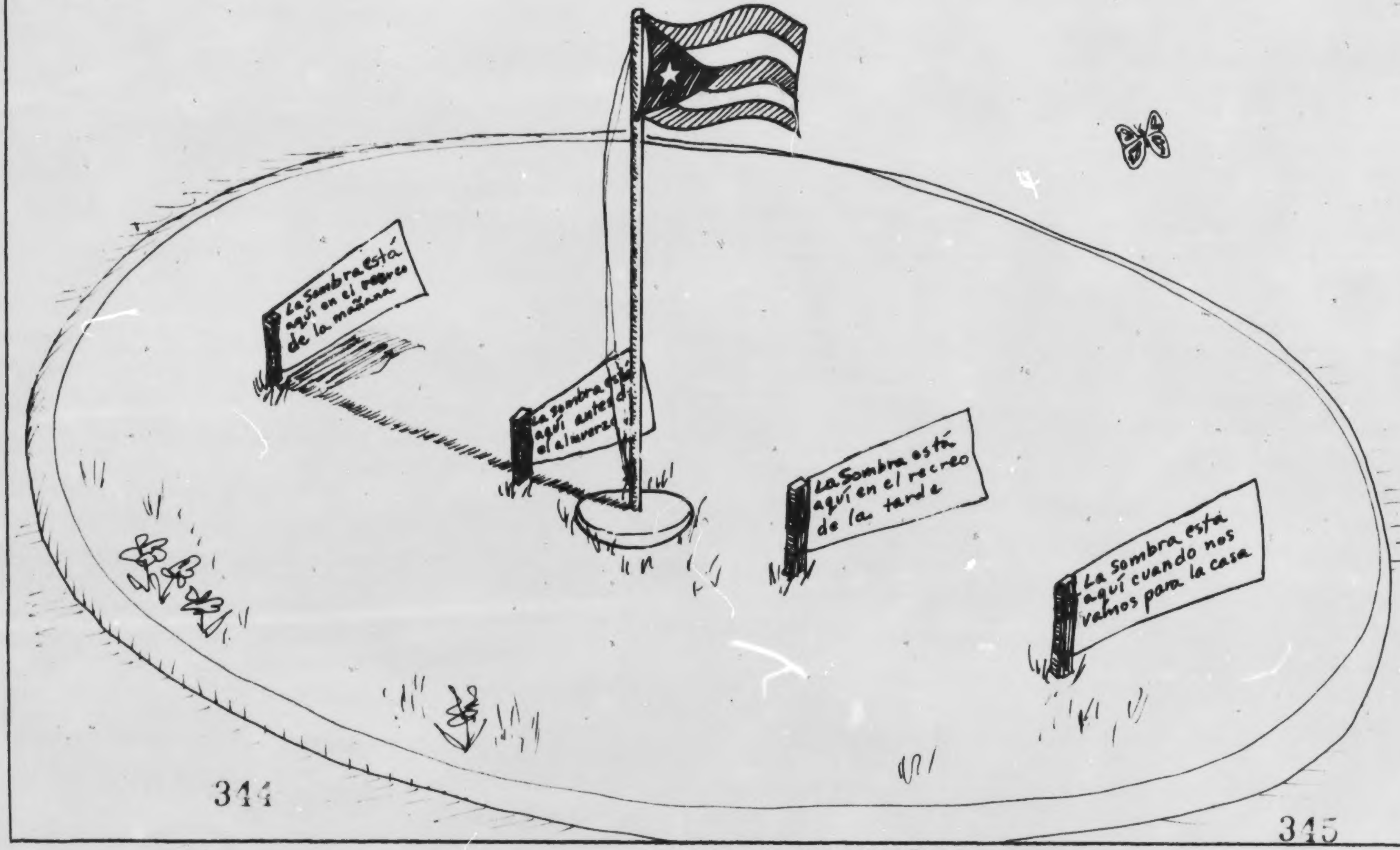
time
change
morning
sunrise
noon
sunset
sand timer
shadow stick
growth
before
after
between
hour
half hour
quarter hour
hour hand
minute
minute hand
o'clock
second

FIRST ACTIVITY FOR SKILL A

The children can learn how to relate the word "time" to actual events. First, have a discussion in which the children are led to think about and talk about the fact that the sun is in different positions in the sky at different times of the day. Ask the children to tell how they would know it was lunch time if they were out playing in a park and nobody was there to tell them the time. Ask if the sun was just over their heads would it be morning, noon or evening.

After this discussion the class can go outside to observe the position of the sun. Some tall object like a tree or flag pole can be picked out for study. Have the children observe where the tip of the shadow of this object is on the ground and mark this spot with a stake. Have them write on the stake some descriptive statement such as "the shadow was here just before lunch." Other times when the class is outside other stakes can be put in the ground where the tip of the shadow is at these times and more descriptive statements can be written on the stakes. After at least four stakes have been placed in this way, each student can be asked to draw a picture of the ground around the object which shows the stakes marking the different times of day. Have a discussion about the direction of the movement of the shadow from morning until evening.

FIRST ACTIVITY FOR SKILL A


La Sombra está aquí en el recreo de la mañana
La Sombra está aquí antes del almuerzo
La Sombra está aquí en el recreo de la tarde
La Sombra está aquí cuando nos vamos para la casa

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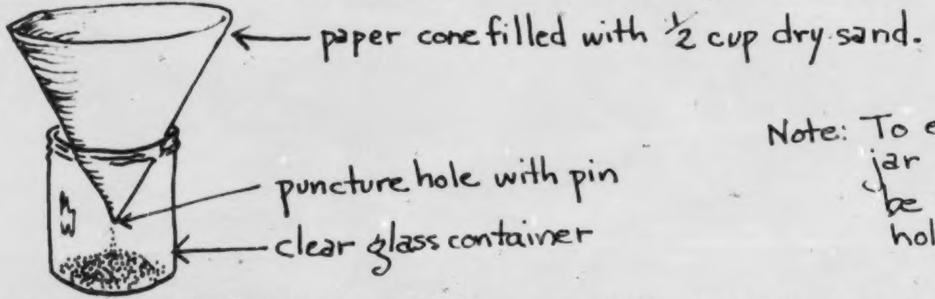
SECOND
ACTIVITY
FOR
SKILL A

Sand timers can be made and used in the classroom as a means of measuring time.



Note: To empty sand from jar back into cone be sure to pinch pin-hole shut!

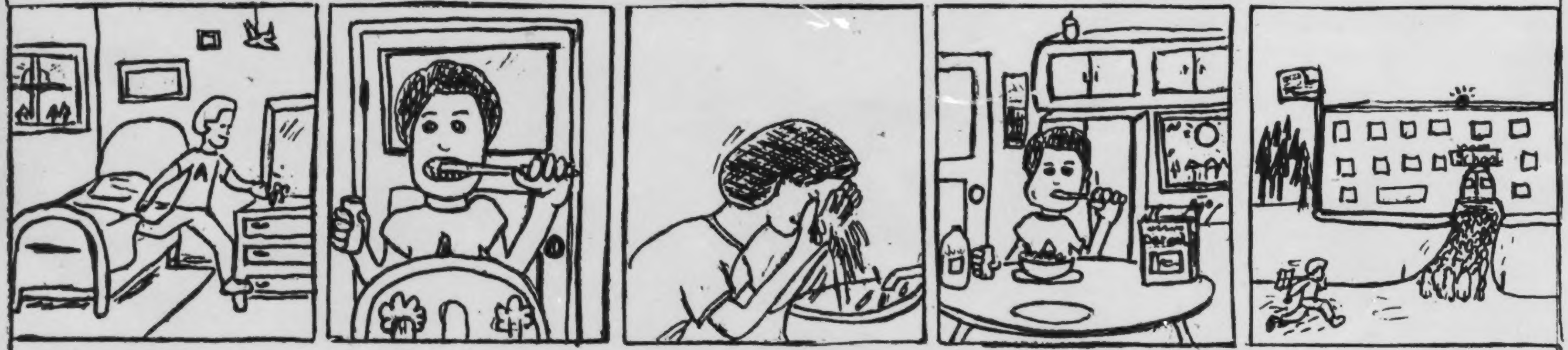
Children use their sand timers to see if they can perform certain tasks before the sand runs out. Examples: Can you bounce a ball five times before the sand runs out? sharpen three pencils? take your shoes and socks off and put them on again, etc.

How many times did you beat the sand timer? ________

How many times did the sand timer beat you? ________

THIRD
ACTIVITY
FOR
SKILL A

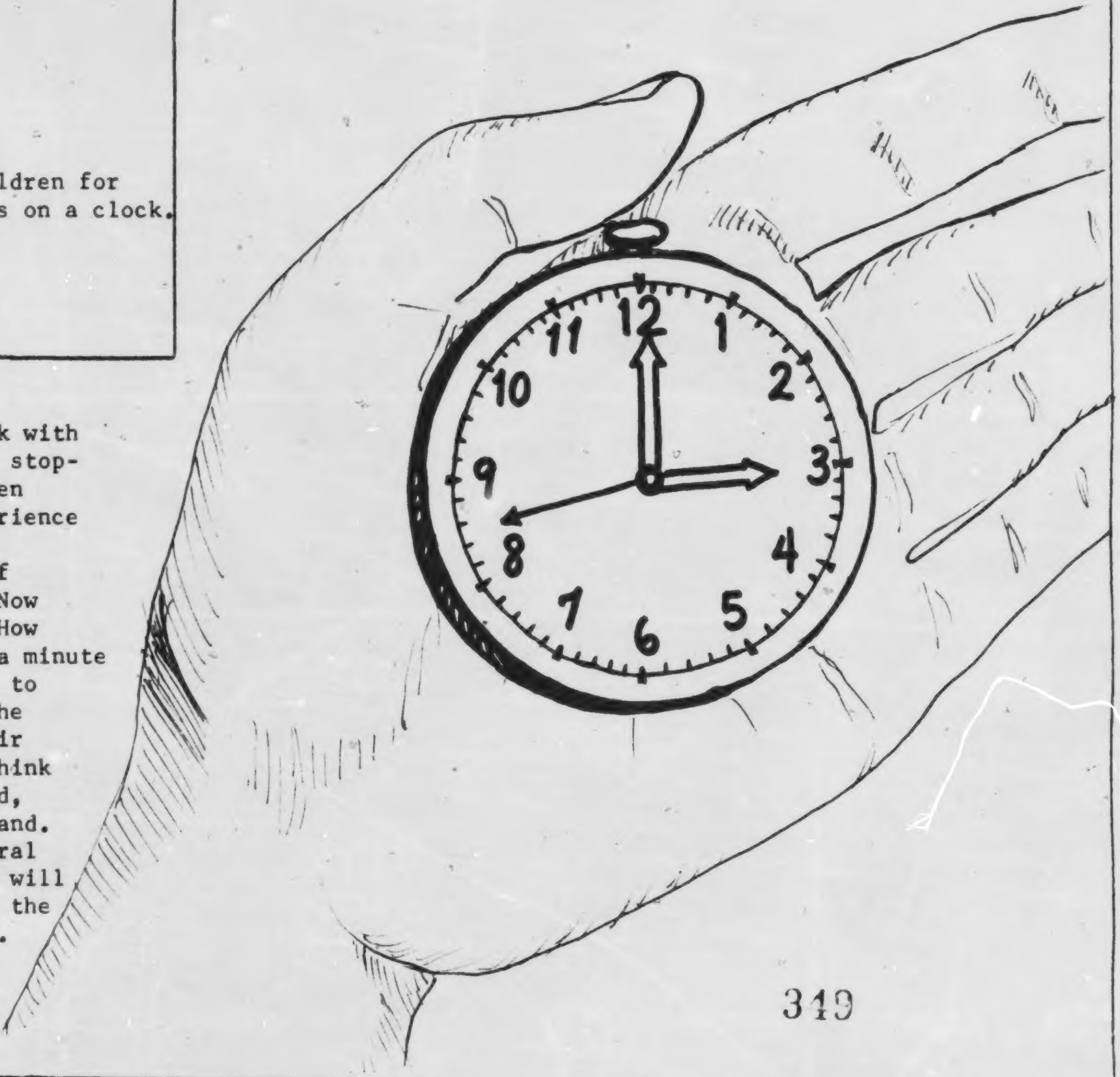
Children make: My Time Line or My Time Book.
The teacher prepares the paper with the time line or the booklets the children will use. The children draw pictures in progression of things they do in the morning/afternoon or night. Example: Morning Time Line; get up, brush teeth, wash face, eat breakfast, go to school, have recess, etc.



* Children do not write in the time, they just draw the pictures in progression.

346 My morning Time Line 347

SKILL B: To prepare the children for reading the minutes on a clock.



FIRST ACTIVITY FOR SKILL B

Materials: a clock with a second hand or a stop-watch. The children have had some experience in estimating time (through the use of the sand timer). Now ask the children "How long do you think a minute is?" Use a signal to begin, then have the children close their eyes. When they think a minute has passed, they raise their hand. By doing this several times the children will develop a feel for the length of a minute.

SECOND ACTIVITY FOR SKILL B

Have the children find out how many minutes it takes to do different things by watching the second hand on the clock. Each time the second hand goes completely around the clock one minute has passed. If the second hand goes around three times during an activity that will be three minutes.

It took José _____ minutes to bounce the ball 50 times.

It took María _____ minutes to wash the board.

It took Roberto _____ minutes to water the plants.

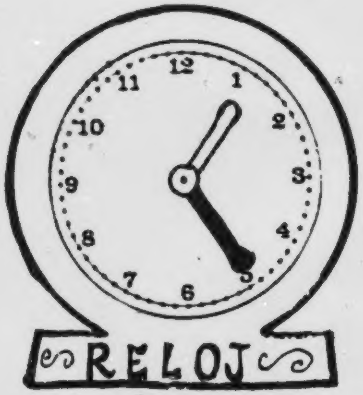
THIRD ACTIVITY FOR SKILL B

Have a clock that has all sixty minute markings which are very distinct and clear. Have the children watch the second hand go around once and at the same time watch the movement of the minute hand. After watching this a few times they should note that the minute hand has moved from one minute mark to the next.

FOURTH ACTIVITY FOR SKILL B

Have the children watch the second hand go around five times and at the same time watch what happens to the minute hand. Each time that the second hand completes going around the clock the class can shout out the number of times it has gone around (uno...dos... tres...quatro...cinco). They should notice that the minute hand has moved from one number on the clock to the next number. For example: from two to three or from ten to eleven. They need to take note of the fact that although the minute hand has only moved up one number, this is still five minutes.

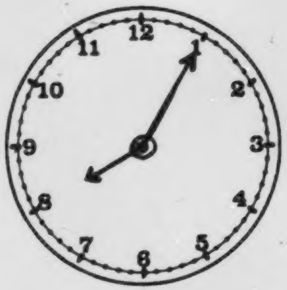
SKILL C: To read minutes after the hour.



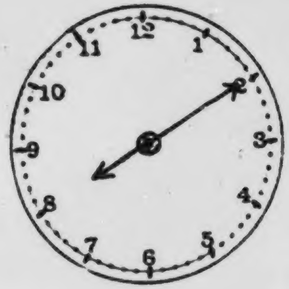
FIRST ACTIVITY FOR SKILL C

Material needed: Large demonstration clock circle.
Teacher moves the minute hand and the children tell how many minutes after the hour.

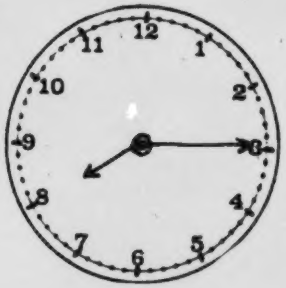
Example: How many minutes after 8?



____ minutos después



____ minutos después



____ minutos después

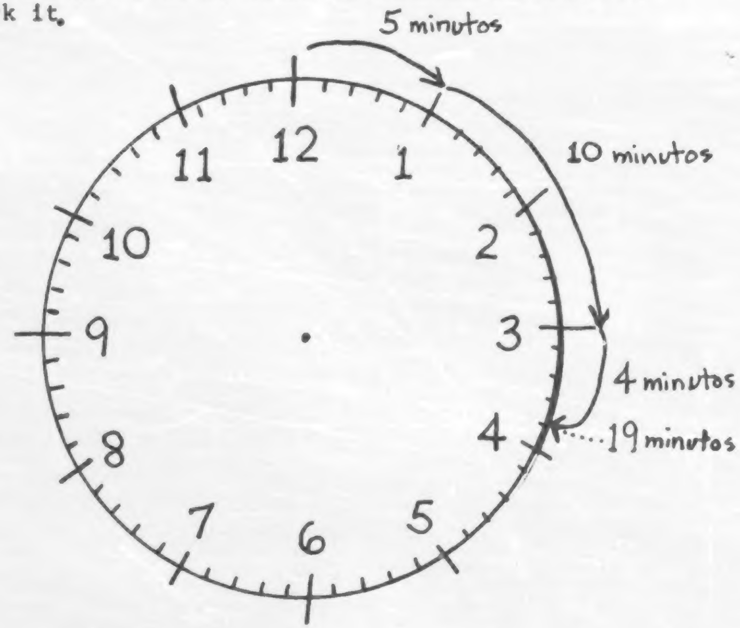
SECOND
ACTIVITY
FOR
SKILL C

Preparation: Clock Circle - Cut a large circle (it should be big enough that it can be seen with ease by all the children). Mark off from 0 to 60 like a clock face. Cover it with contact. Use "Easy Off Crayon" to mark it.

Add the minutes on the clock circle.

Ana se tomó 5 minutos en lavarse el pelo.
Se tomó 10 minutos en secarse el pelo.
Se tomó 4 minutos en peinarse el pelo.

¿Cuánto tiempo se echo en arreglarse su pelo? 19 minutos.


5 minutos
10 minutos
4 minutos
19 minutos
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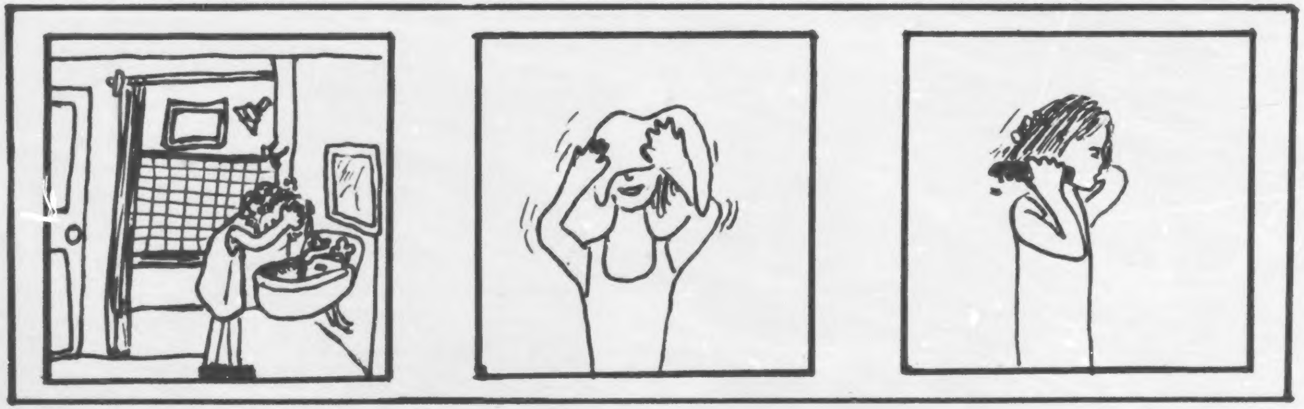
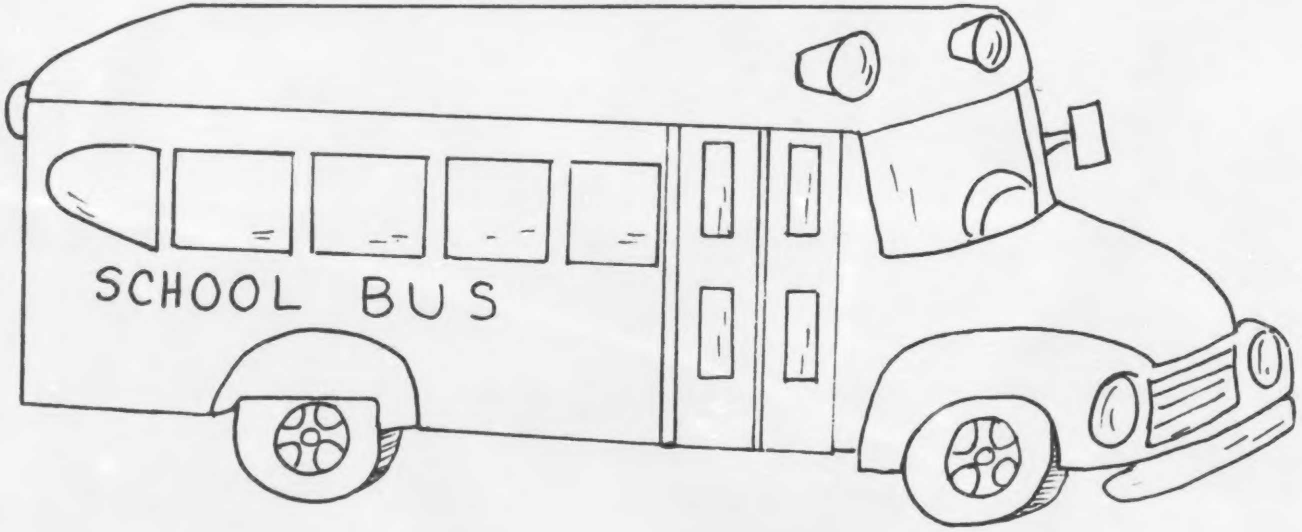
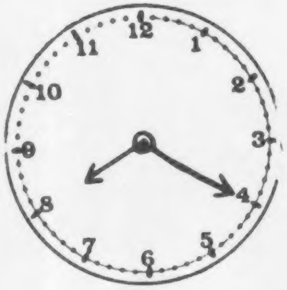




¿A que hora viene la guagua a la casa de Luis, Carmen y Roberto para recogerlos y llevarlos a la escuela?

Casa de Luis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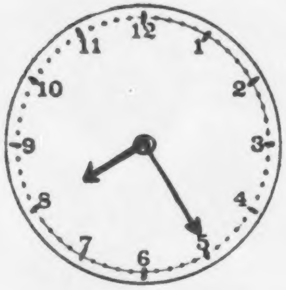
las ocho y _____ minutos

Casa de Carmen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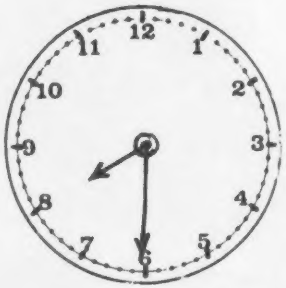
las ocho y _____ minutos

Casa de Roberto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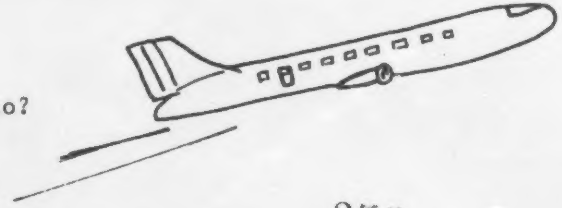
las ocho y _____ minutos

SKILL D: To review telling time on the hour.

FIRST ACTIVITY FOR SKILL D	Have the children discuss things that take about an hour to do. Examples: TV shows that last an hour, lunch period. What are some games that take about an hour? What trips do you take that are about an hour long?

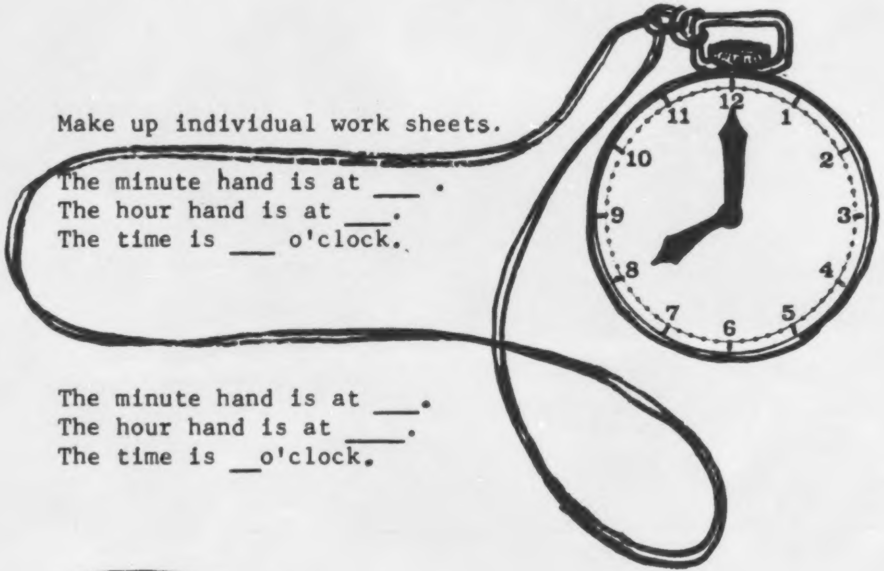
¿Cuántas horas se toma para volar a Puerto Rico?



SECOND ACTIVITY FOR SKILL D

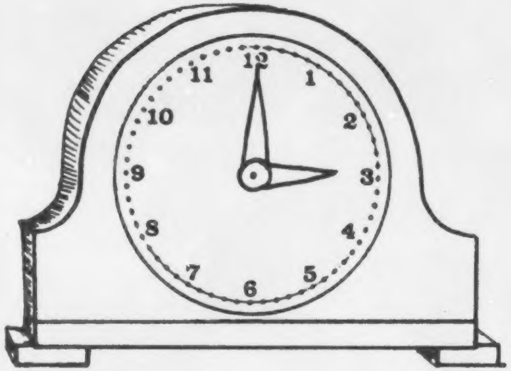
Use the demonstration clock. Set it on the hour. Ask the children to what number the longer hand is pointing. What special thing is this telling you? The long hand tells the minutes. Set the short hand on the clock. Ask: What number is it pointing to? What special thing is this telling you? The short hand points to the hour.

Make up individual work sheets.

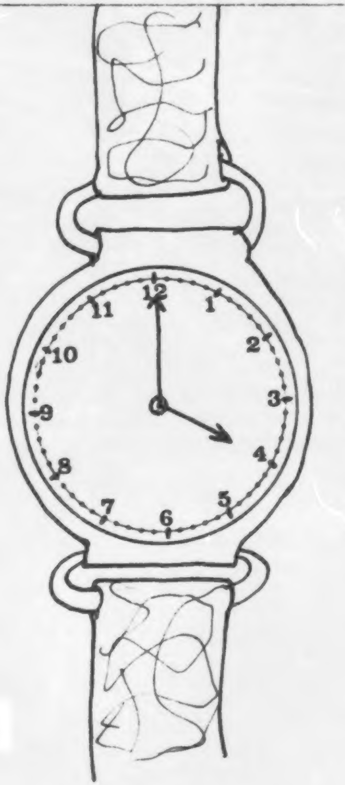


The minute hand is at ___ .
The hour hand is at ___.
The time is ___ o'clock.

The minute hand is at ___.
The hour hand is at ____.
The time is __o'clock.



¿QUE HORA ES?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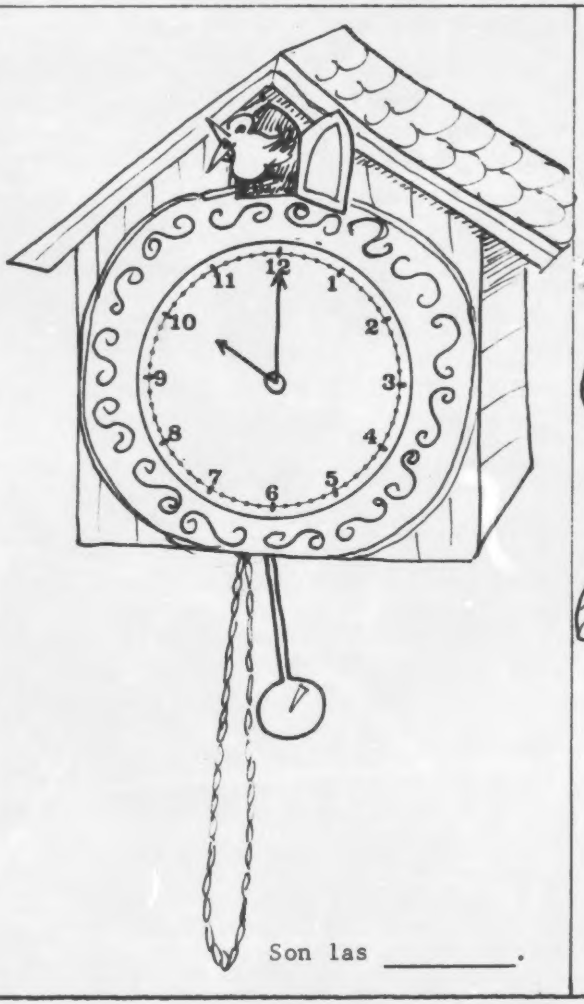
Son las ________.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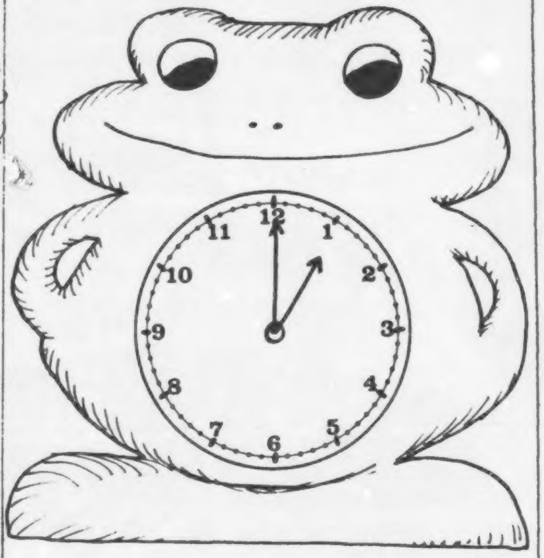
Son las ________.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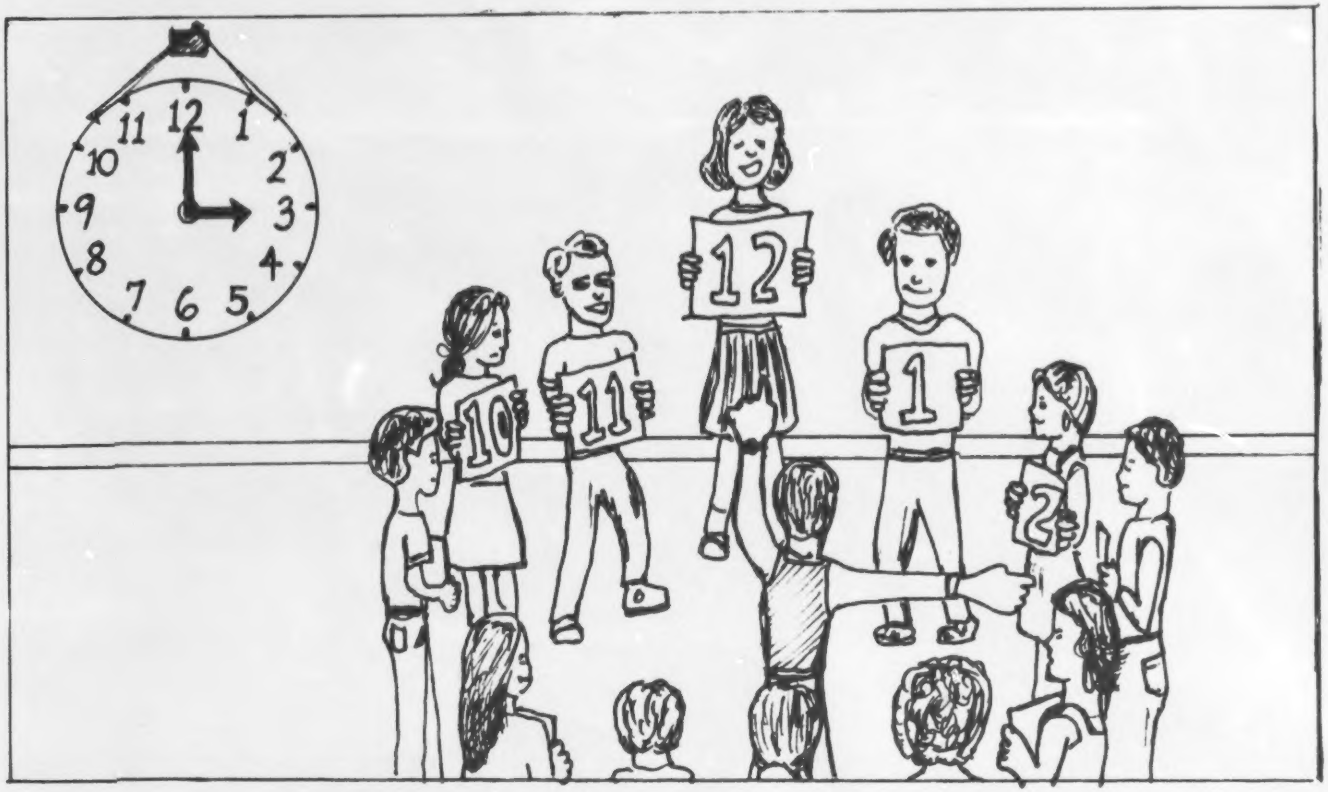
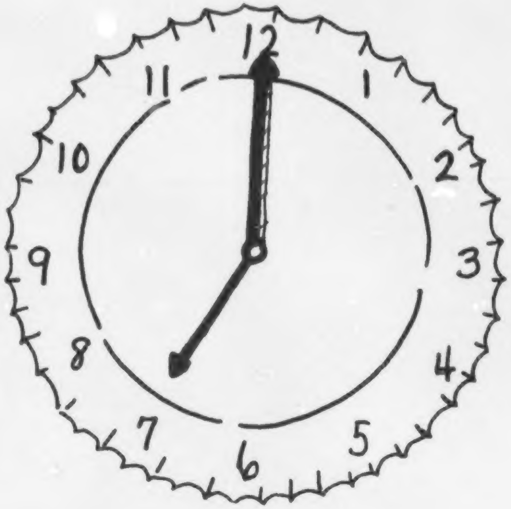
Es la ________.

THIRD ACTIVITY FOR SKILL D	Have the children make a human clock. Choose 12 children. Give each child a card with a numeral that represents his place on a clock face. Choose another child to stand in the center of the circle and use his arms to show the following times: 3 o'clock, 6 o'clock, 9 o'clock. Show the same times on the demonstration clock.



FOURTH ACTIVITY FOR SKILL D

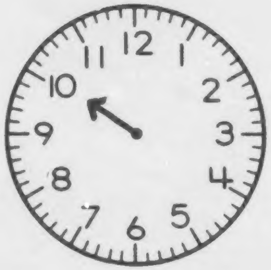
Children make their own clocks using a paper plate, a metal fastener, and two cardboard hands. Make the shorter hand black and the longer hand red. They can use magic marker or crayons to mark the numerals. The children can use the demonstration clock as a model. You can have the children use their clocks to show given times, such as 4 o'clock, 7 o'clock, etc.



SKILL E: To tell time at five minute intervals.

FIRST ACTIVITY FOR SKILL E

Review counting by 5's to 60.
The children are given papers with clocks that have 5-minute intervals numbered. They draw minute hands to match given times. Remind the children to make the minute hand longer than the hour hand. Explain that in the form for writing time the minutes come at the end, (after the colon).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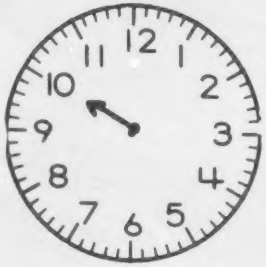
10:05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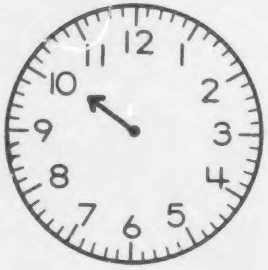
10:10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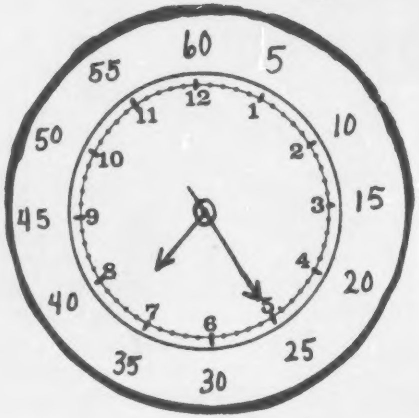
10:15

SECOND ACTIVITY FOR SKILL E

Use the chalkboard or make up papers for the class. The children practice writing the time when there are five minutes intervals after the hour given.

¿Qué hora es?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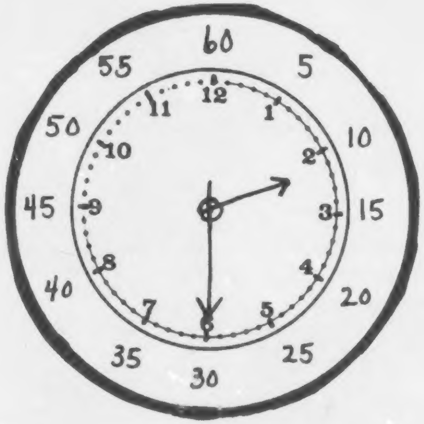
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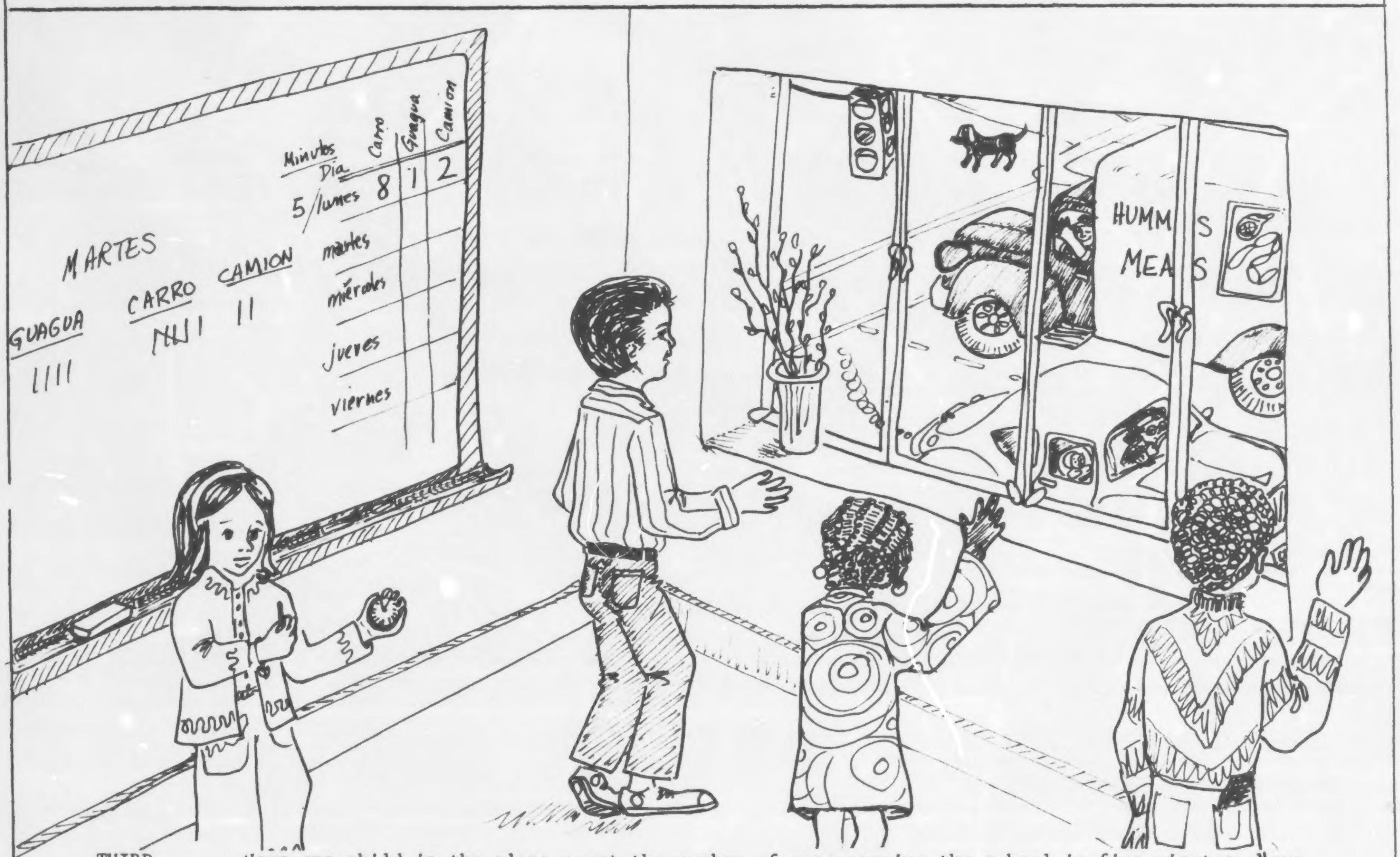
7 y 25 minutos

o 7:25

2 y 30 minutos

o 2:30


Minutos
Dia
Carro
Guagua
Camion
5/lunes 8 1 2
martes
miércoles
jueves
viernes
MARTES
GUAGUA
||||
CARRO
𝍸 |
CAMION
||
HUMM S
MEA S

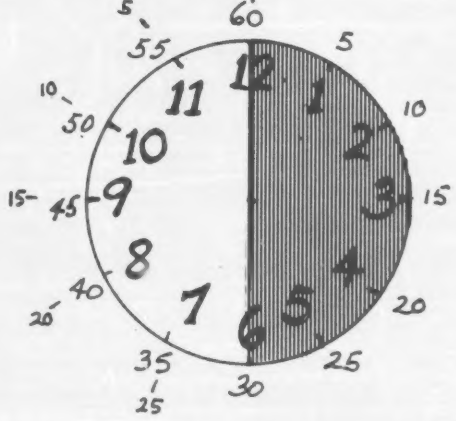
THIRD ACTIVITY FOR SKILL E

Have one child in the class count the number of cars passing the school in five minutes. Have another child count the number of buses. Have a third child count the number of trucks in the same time. Compare the results. The next day, use 10 minutes for the same activity. Compare the results with the day before.

SKILL F: To read the number of minutes before the hour.

FIRST ACTIVITY FOR SKILL F

The teacher draws a large clockface on the chalkboard, like the one presented on this page.


9
60
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25
30
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5
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7
8
9
10
11
12

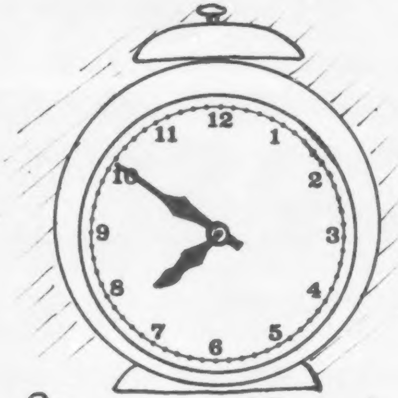
The teacher points to the clock. We can say 5 minutes before 9:00 or we can say and write 8:55 which means 55 minutes after 8.

374

375

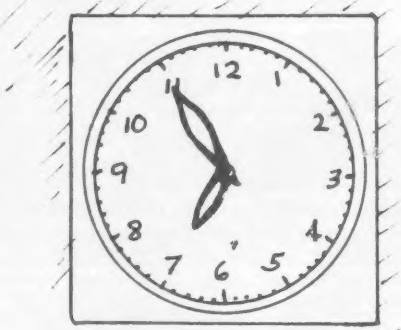
FIRST ACTIVITY FOR SKILL F

¿Qué hora es?



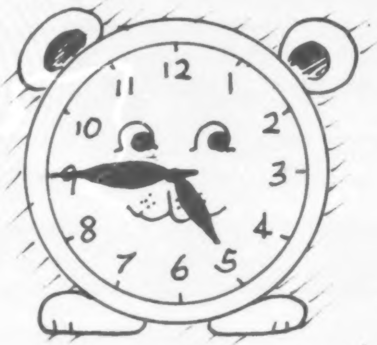
8 menos 10 minutos.

o 7:50.



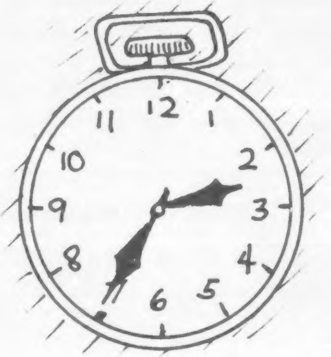
___ menos ___ minutos.

o ___:___



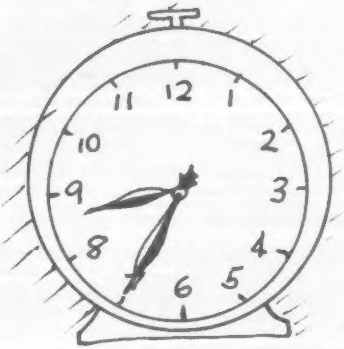
___ menos ___ minutos

o ___:___.



___ menos ___ minutos

o ___:___.



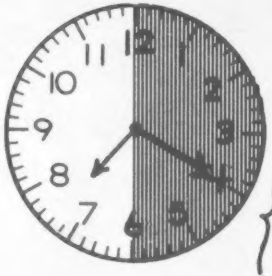
___ menos ___ minutos

o ___:___.

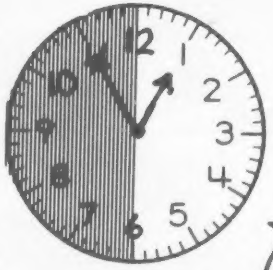
SKILL G: To tell the number of minutes past or after the hour, and before or to the hour.

FIRST ACTIVITY FOR SKILL G

On the clock, the numerals from 12 to 6 show the minutes past or after the hour. The other half of the clock shows the minutes before or to the hour.



7 y 20 minutos
20 minutes past 7

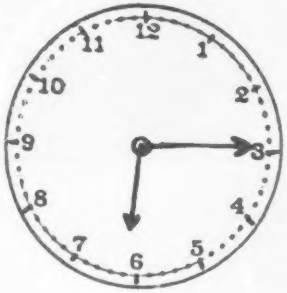


1 menos 5 minutos
5 minutes before 1

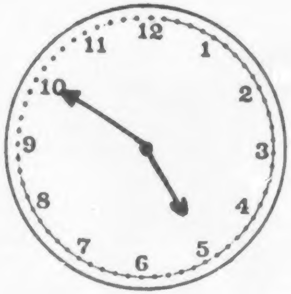
Ask the children, "On a school morning, what do you do from 9 o'clock until half past 9?" Draw a picture to show your answer. What do you do in school from half past 9 to 10 o'clock?

SECOND
ACTIVITY
FOR
SKILL G

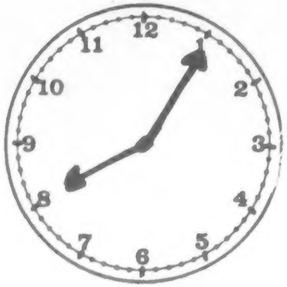
For each clockface write the numeral that tells what time it is.



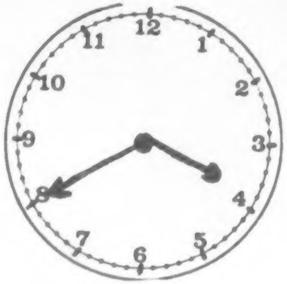
____ y ____ minutos



____ menos ____ minutos



____ y ____ minutos

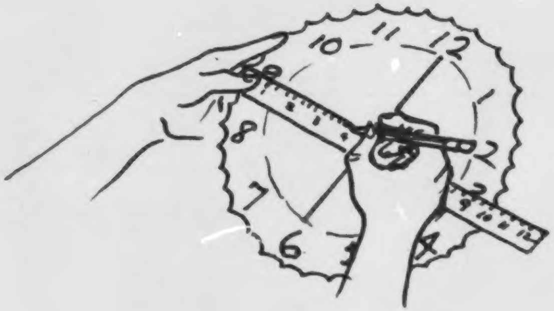


____ menos ____ minutos

SKILL H: To recognize that a quarter of an hour means ½ of an hour or 15 minutes.

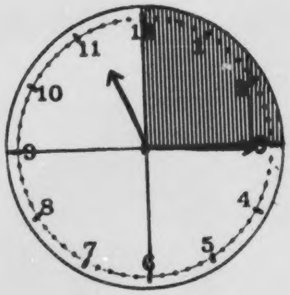
FIRST ACTIVITY FOR SKILL H

The children can use their paper plate clocks for this activity. Have the children take their rulers and draw a line from the 12 to the 6, then draw another line from the 9 to the 3. You have divided your clock into quarters. A quarter of an hour means ½ of an hour, or 15 minutes.



SECOND
ACTIVITY
FOR
SKILL H

The quarter hours can be colored four different colors so that time involving quarter hours can be indicated in the following way: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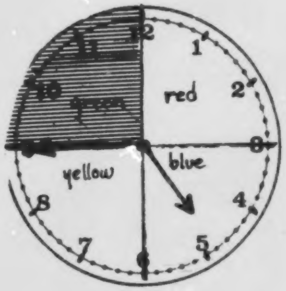
A QUARTER PAST ELEVEN


12
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9
10
11
red
green
blue
yellow

A QUARTER TO FIVE

The teacher asks the children to set their clocks to the following times:

1. nueve menos cuarto
2. cinco menos cuarto
3. ocho menos cuarto
4. cuatro menos cuarto
5. seis y media
6. tres y media

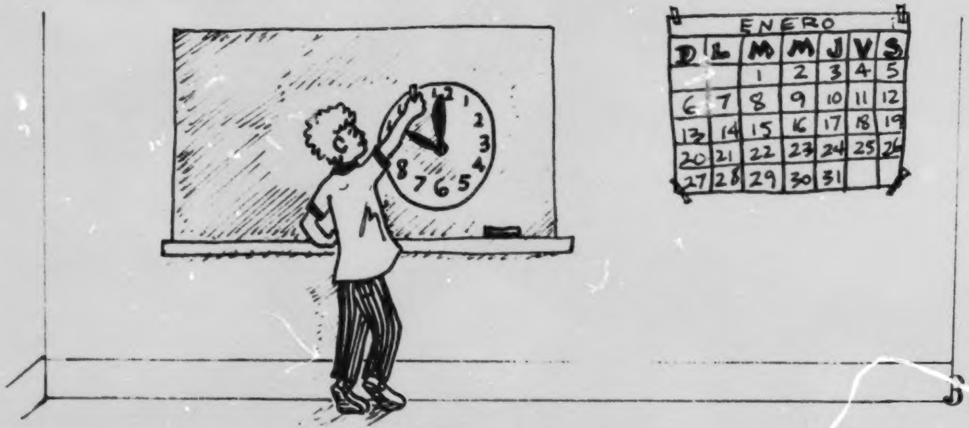
SKILL I: To read the calendar and to understand days, weeks, and months.

VOCABULARY:
before
day
after
week
month
today
date
tomorrow
yesterday
calendar
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
ordinals first through seventh

FIRST ACTIVITY FOR SKILL I

Materials needed: large demonstration clock, a large calendar.

At the beginning of a school day, have one child read the time on the classroom clock. Then have the child draw a clockface on the chalkboard to show the time. Leave the clock on the chalkboard. The next morning at the same time draw the children's attention to the clock on the chalkboard. Explain to the children that the time that elapsed between the time that the clock was drawn on the board yesterday morning and the time that they are checking it this morning is called a day.



SECOND ACTIVITY FOR SKILL I

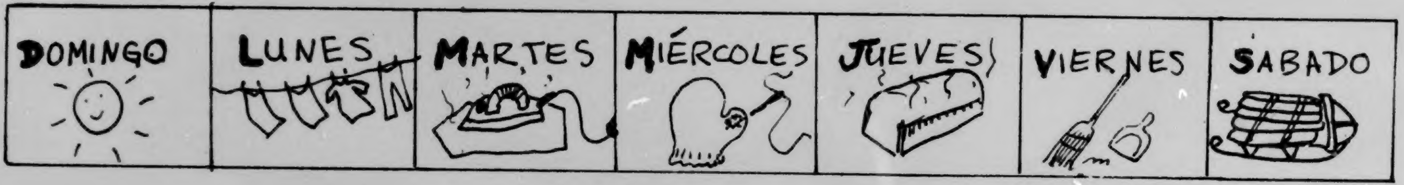
The teacher will help the children recall that there are seven days in a week, and that seven days measure the same amount of time as one week. On Monday, ask the children if they know what today is. Record the name of the day on a large chart. Record the name of each successive day until the end of the week. On Monday the children should be prepared to tell how many days they did not go to school. Saturday and Sunday are then recorded on the chart. Children are then reminded of the day they started the chart. The teacher explains that a week has passed since that time.

domingo	lunes	martes	miércoles	jucues	viernes	sábado

Children draw their own pictures of things they do in school during a school week. For Saturday and Sunday they can show themselves at home playing.

THIRD ACTIVITY FOR SKILL I

(Part A). To help the children understand the concepts of day and week.


DOMINGO
LUNES
MARTES
MIÉRCOLES
JUEVES
VIERNES
SABADO

1. Hoy es ________________.

2. Cada semana tiene ____________ días.

3. Martes es el día después de ___________.

4. Lunes es el día antes del _______.

5. Jueves es el día después de _______.

6. Sabado es el día después de _______.

7. Miércoles es el día antes del______.

THIRD
ACTIVITY
FOR
SKILL I

(Part B).

domingo	lunes	martes	miércoles	jueves	viernes	sábado
1	2	3	4	5	6	7
primero	segundo	tercero	cuarto	quinto	sexto	septimo

Explain to the children that many people think of Sunday as the first day of the week. Make a chart with the names of the days in order. Label each with a numeral, 1 through 7. Then ask the children: Si el domingo es el primer día, ¿cuál es el segundo día? ¿el tercer día?

Have the children give the present day. Ask: ¿Qué día era ayer? Tell them to give both the name and the ordinal. Ask: ¿Qué día será mañana?

FOURTH
ACTIVITY
FOR
SKILL I

(Part A). All the days on this calendar, taken together, are called a month.

enero						
domingo	lunes	martes	miércoles	jueves	viernes	sábado
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

1. Es el mes de ________________.

2. El primer día de este mes es el ___________.

3. Hay ______ días en este mes.

4. El último día de este mes es el ______.

5. Hay ______ martes en este mes.

6. Hay ______ viernes en este mes.

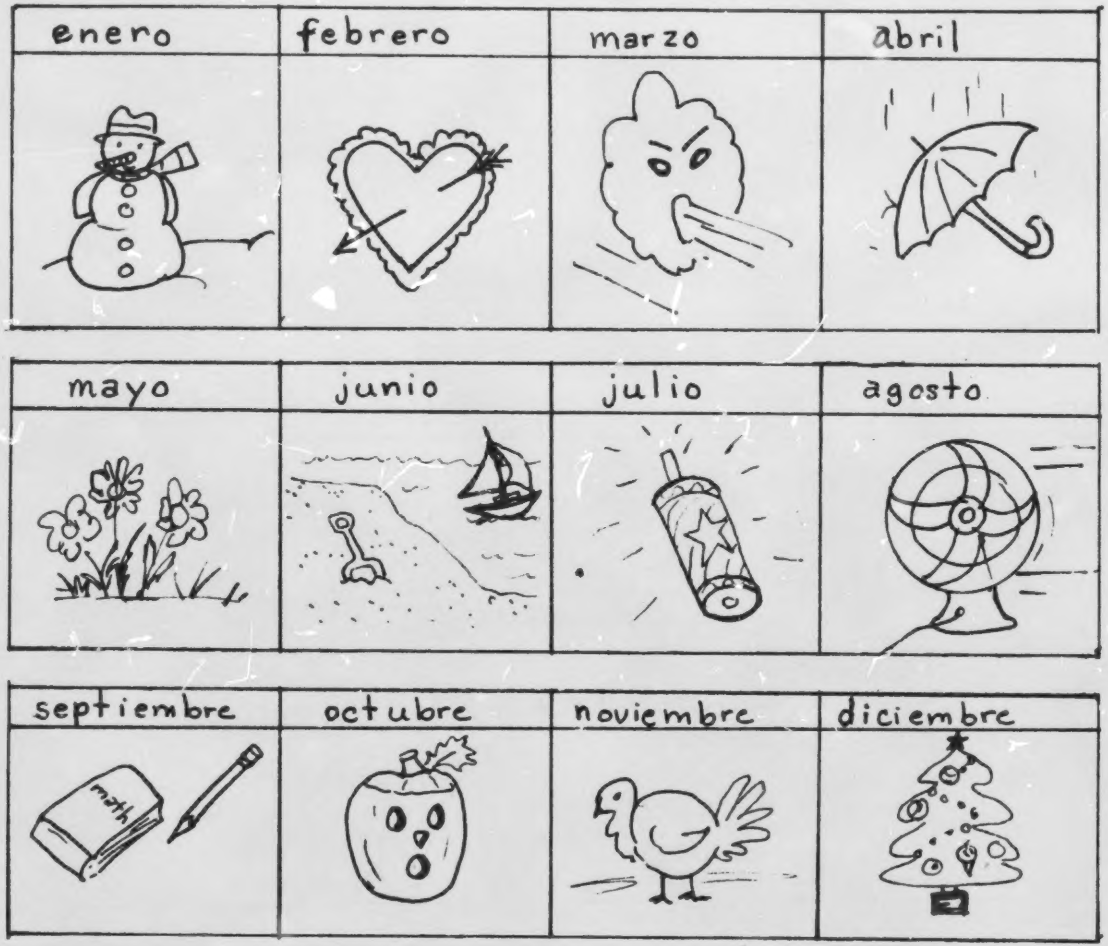
FOURTH ACTIVITY FOR SKILL I

(Part B). Make a calendar for the current month. Fill in the numerals and any special days like school trips or gym days, etc.

Nombre de el mes:

domingo	lunes	martes	miércoles	jueves	viernes	sábado

FIFTH ACTIVITY FOR SKILL I

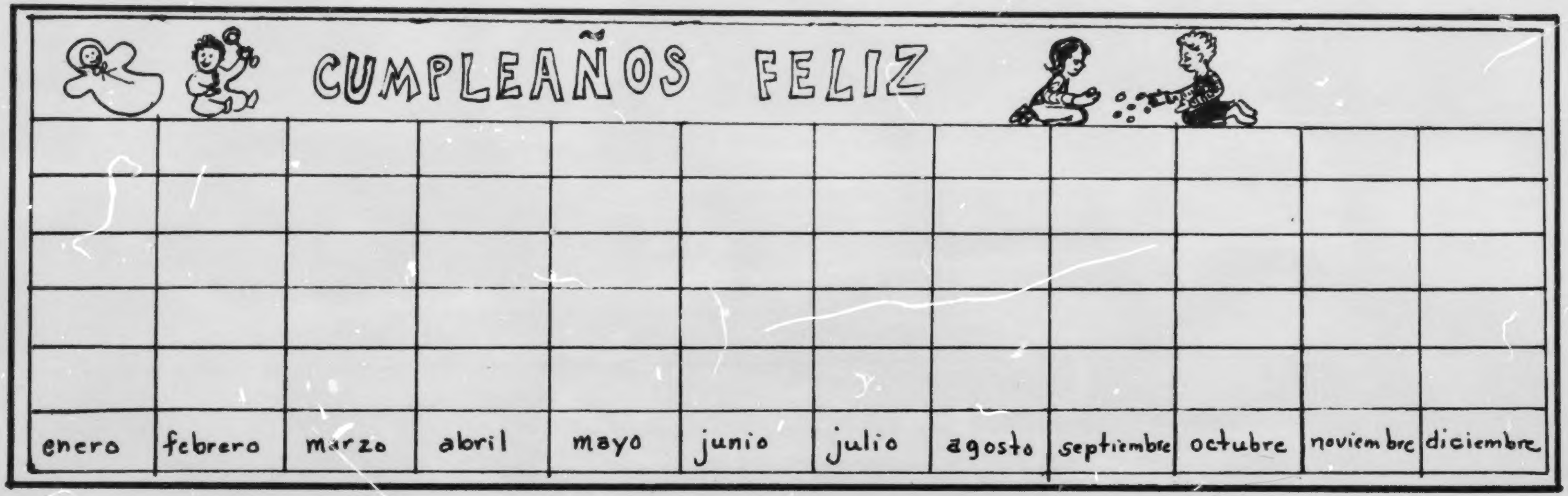

enero
febrero
marzo
abril
mayo
junio
julio
agosto
septiembre
octubre
noviembre
diciembre
math

Go through a calendar with the children. Have them note each month as you turn the page. Before you turn the page write the month on the chalkboard. When you finish. point out to the children that there are 12 months in a year.

Have the class practice the names and sequence of all 12 months. Make a wall chart similar to that below which the children can help illustrate. Place a blank paper over each month in turn and have the children tell you the missing month. They can continue this game on their own with small groups or partners using desk copies of the 12 month chart.

SIXTH
ACTIVITY
FOR
SKILL I

The children will make a birthday graph to reinforce the concept months of the year.


CUMPLEAÑOS FELIZ
enero
febrero
marzo
abril
mayo
junio
julio
agosto
septiembre
octubre
noviembre
diciembre

1. ¿Cuántos cumpleaños hay en abril? _______
2. ¿Cuántos cumpleaños más hay enero? _________
3. ¿ Que mes tiene los más cumpleaños?________
4. ¿Cuántos cumpleaños más hay en octubre? ________
5. ¿Cuántos cumpleaños más hay en mayo que en julio? ________
6. ¿Cuál mes tiene menos cumpleaños? ________
7. ¿Cuántos cumpleaños hay por todo en noviembre y en diciembre?_______

SKILL J: To identify and match the numerical value of coins with other coins: pennies, nickels, dimes, quarters, half dollars.

VOCABULARY:

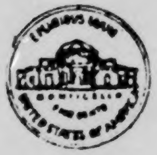
- penny
- nickel
- dime
- quarter
- half dollar
- cents
- value
- coin

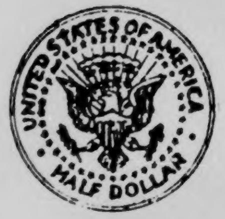
FIRST ACTIVITY FOR SKILL J

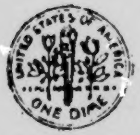
Review the idea that each coin is worth a certain number of cents and that it is possible to have two or more coins which are worth the same amount as one coin of a different kind. For example, five pennies is worth one nickel. Demonstrate how each coin can be matched in worth by groups of other coins. Then have the children do the following kind of matching exercise:

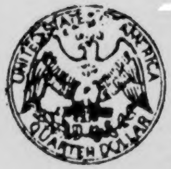
FIRST
ACTIVITY
FOR
SKILL J
(CONTINUED)

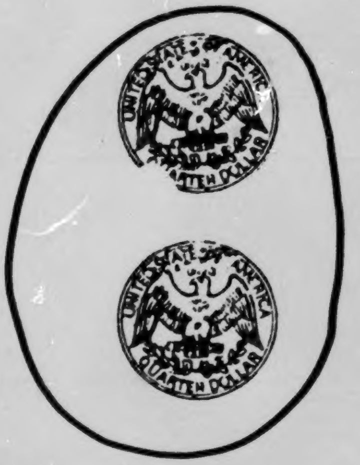
Match each coin on the top to one group of coins on the bottom according to total worth.

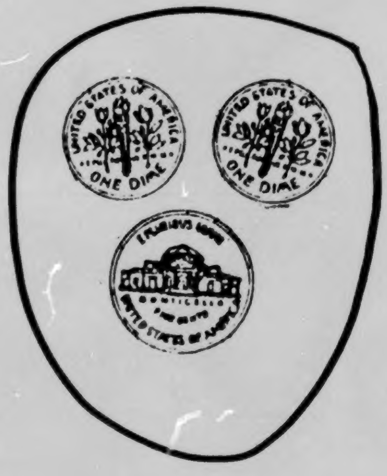


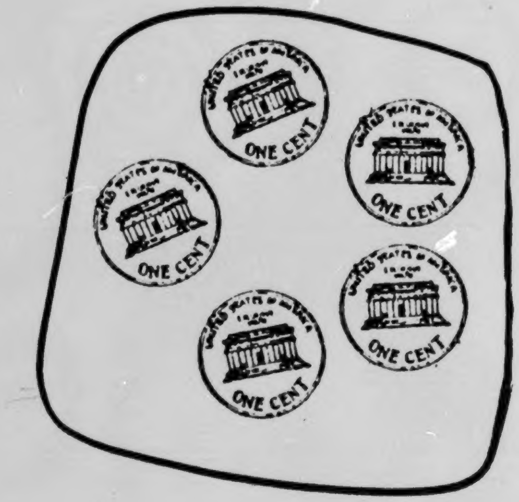

UNITED STATES OF AMERICA
HALF DOLLAR

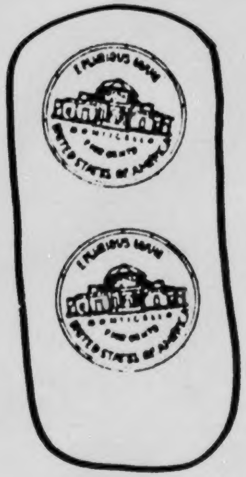

UNITED STATES OF AMERICA
ONE DIME


UNITED STATES OF AMERICA
QUARTER DOLLAR


QUARTER DOLLAR
QUARTER DOLLAR


ONE DIME
ONE DIME


ONE CENT
ONE CENT
ONE CENT
ONE CENT
ONE CENT



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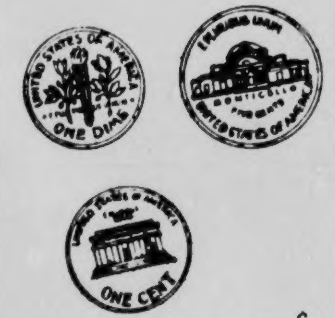
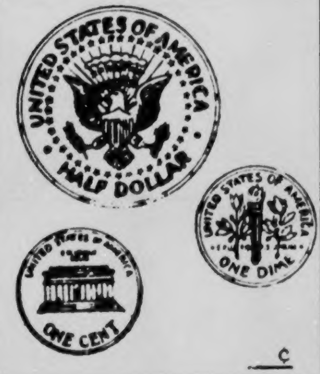
SKILL K: To identify a collection of coins: pennies, nickels, dimes, quarter and half dollar using the cent sign (¢).

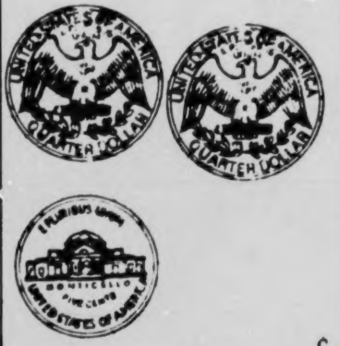
FIRST ACTIVITY FOR SKILL K


ONE DIME
UNITED STATES OF AMERICA
MONTICELLO
ONE CENT

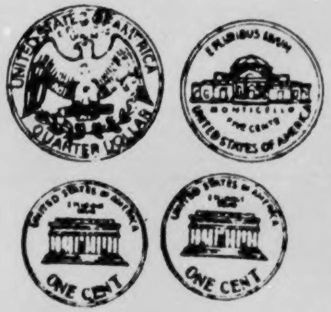
___¢


UNITED STATES OF AMERICA
HALF DOLLAR
ONE DIME
ONE CENT

___¢


UNITED STATES OF AMERICA
QUARTER DOLLAR
MONTICELLO
FIVE CENTS

___¢


UNITED STATES OF AMERICA
QUARTER DOLLAR
MONTICELLO
FIVE CENTS
ONE CENT

___¢

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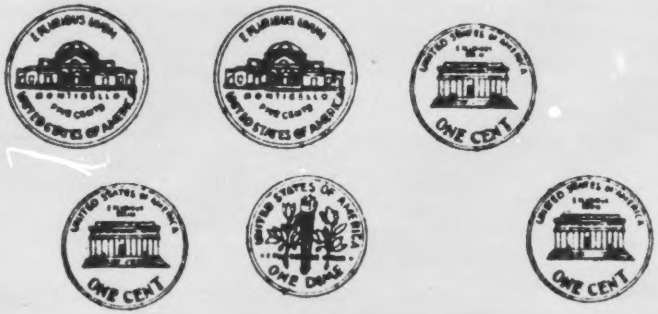
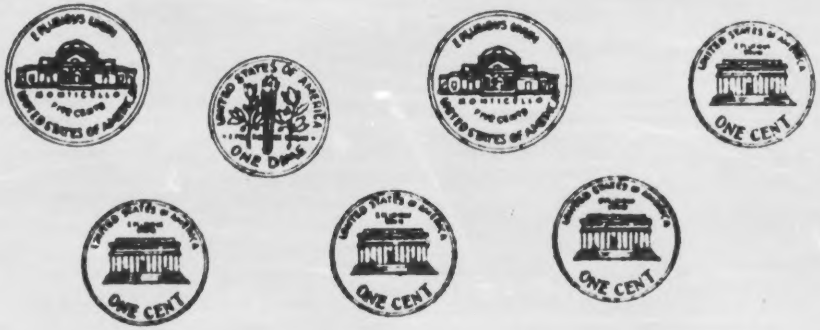
SECOND
ACTIVITY
FOR
SKILL K

MONEY YOU HAVE	CIRCLE THE MONEY YOU HAVE
20¢	

MONEY SPENT	CROSS OUT THE MONEY SPENT
18¢	

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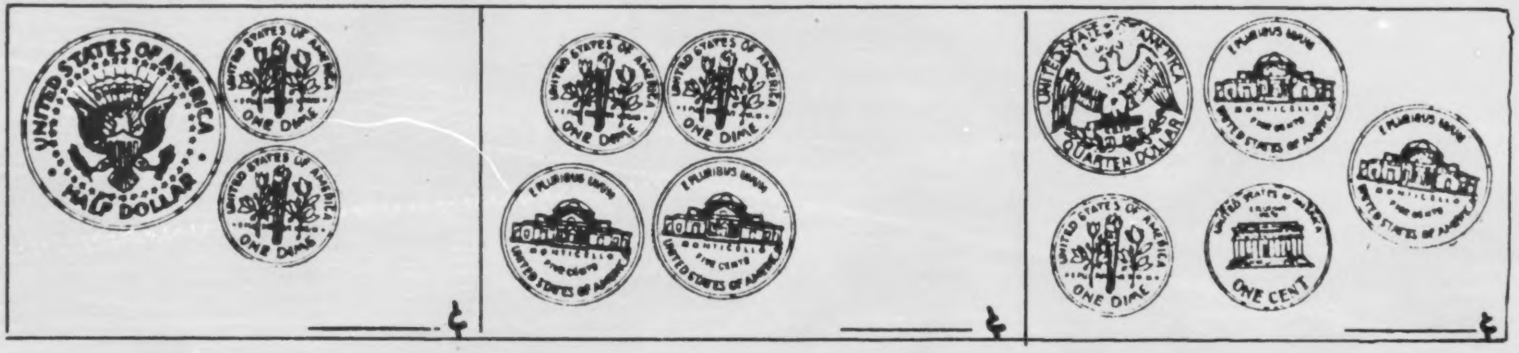
THIRD ACTIVITY FOR SKILL K

YOU HAVE YOU SPEND CIRCLE THE CORRECT AMOUNT YOU HAVE LEFT



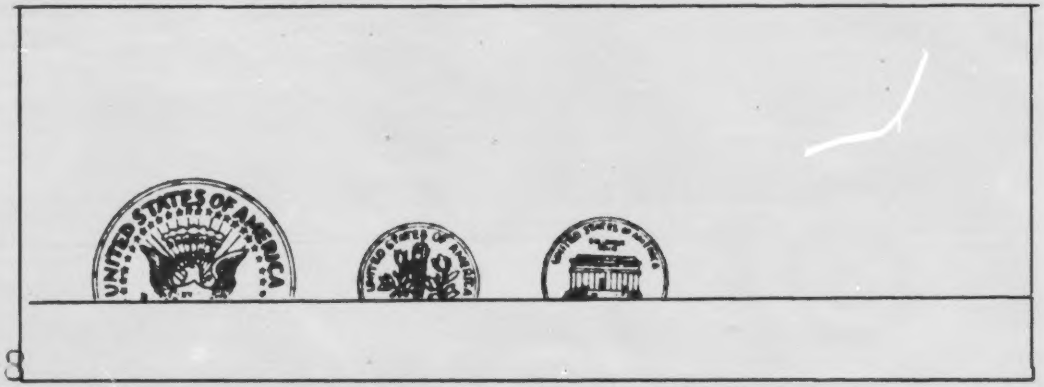
FOURTH ACTIVITY FOR SKILL K

Children tell how much money is displayed in the pocket chart.

Preparation and Materials

Cut two 8½" circles of cardboard. Label each 50¢. Cut four 6½" circles, label each 25¢. Cut ten 4" circles, label each 10¢. Cut six 5" circles, label each 5¢. Cut ten 4½" circles, label each 1¢.

Fold up an inch strip along the edge of a 24" by 16" sheet of tagboard. This will serve as a pocket chart to hold the "coins". A group of the coins that were made are displayed. Children write on a piece of paper how much money the coins total or answer orally.



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FIFTH
ACTIVITY
FOR
SKILL K

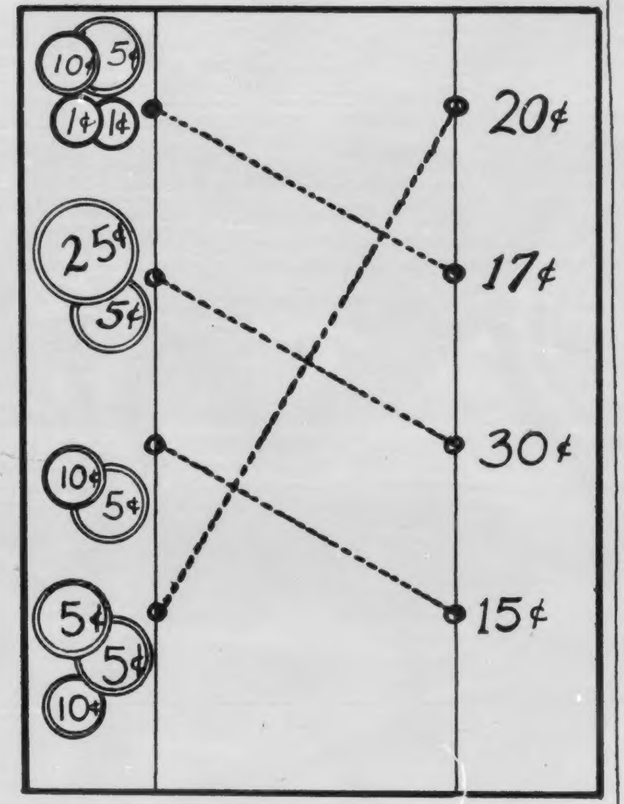
Work Cards

The cards match coins to their respective value in cents. The matching is done by lacing a piece of yarn from the coin in the left-hand column to its respective currency value in the right-hand column. This could be done as a small cooperative group activity so the teacher can evaluate the group's progress as they complete a set of cards.

Preparation and Materials

Cut 10 tagboard cards 8" by 11". On the left side stamp four different groups of coins (use coin stamps). On the right side write the currency values. Attach an 8½" piece of yarn next to each group of coins on the left side. On the right side with a hole puncher make a hole in front of the amount in cents.

MONEY CARD



SKILL L: To identify the coins needed to purchase items (e.g. articles in a classroom store).

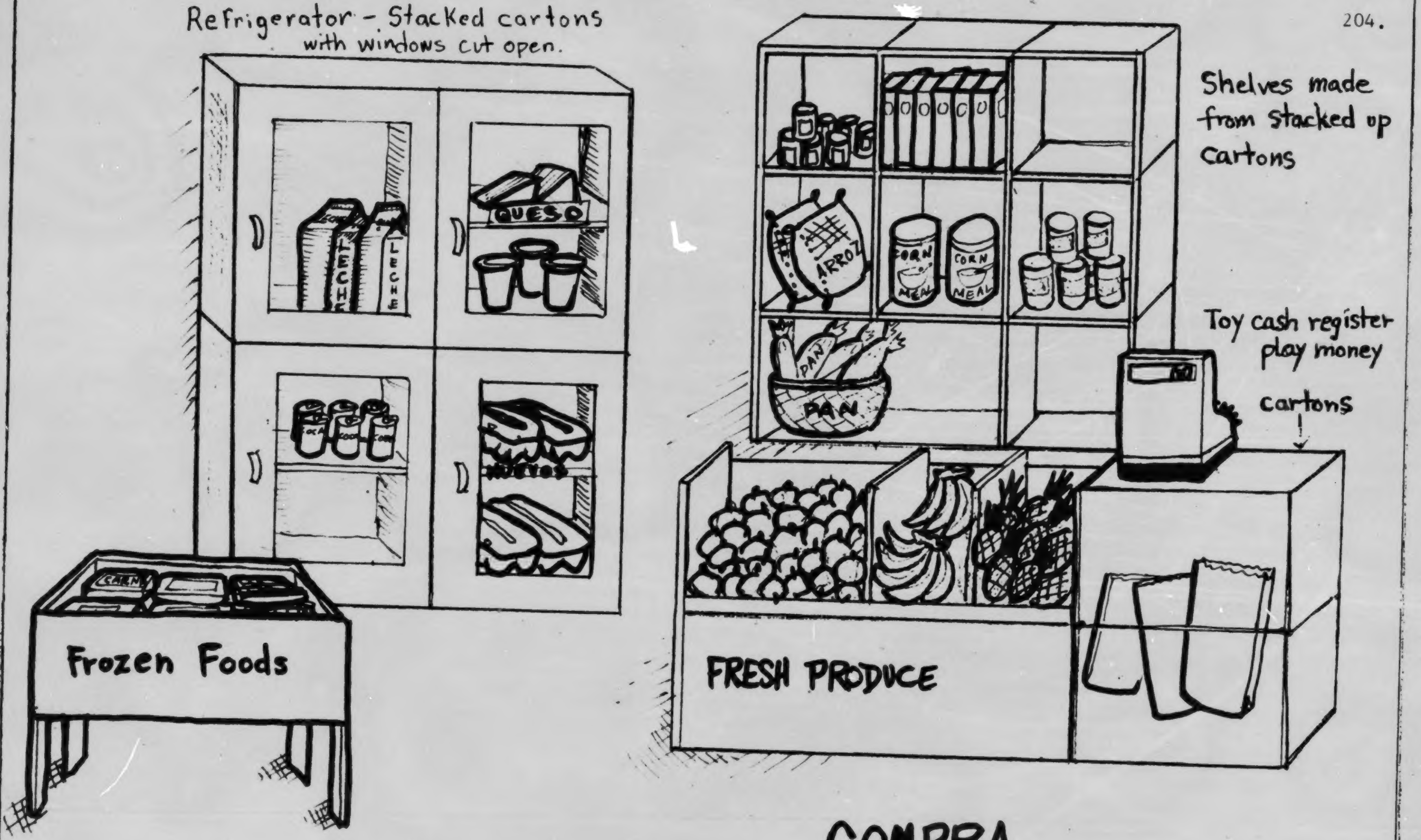
FIRST ACTIVITY FOR SKILL L

Children help make a classroom grocery store, and tag items to be sold. (Empty fruit and vegetable cans, cereal boxes, etc. can be brought from home by the children. Paper mache fruits and vegetables can be made by the children.) A visit to a local grocery store can be made so children can note:

prices
items stacked by categories
people that work in the store
check out counter and cash register

Children use play money for purchases.. The play money can be made by the children out of cardboard.

Example of a follow up work sheet:


LECHE
LECHE
QUESO
HUEVOS
CARNE
ARROZ
CORN MEAL
CORN MEAL
PAN
PAN
Frozen Foods
FRESH PRODUCE

Refrigerator - Stacked cartons with windows cut open.

Shelves made from stacked up cartons

Toy cash register play money

cartons

COMPRA

FIRST ACTIVITY FOR SKILL L

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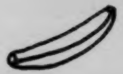
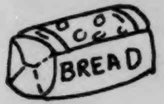
WORK SHEET

Juan, María, Tom y Ana van de compras a la tienda. Cada uno de ellos compra dos cosas. ¿Cuál de ellos va a gastar más dinero? ¿Quién gastará menos?

Juan compra:

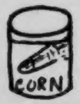


8 ¢

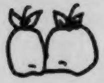


+ 30 ¢

María compra:

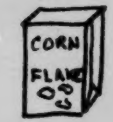


22 ¢

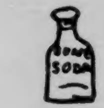


+ 12 ¢

Tom compra:

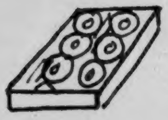


36 ¢

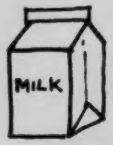


+ 15 ¢

Ana compra:



28 ¢



+ 48 ¢

Juan gastó ______________¢
María gastó ______________¢
Tom gastó ______________¢
Ana gastó ______________¢

¿Quién gastó mas dinero? ______________
¿Quién gastó menos dinero? ______________

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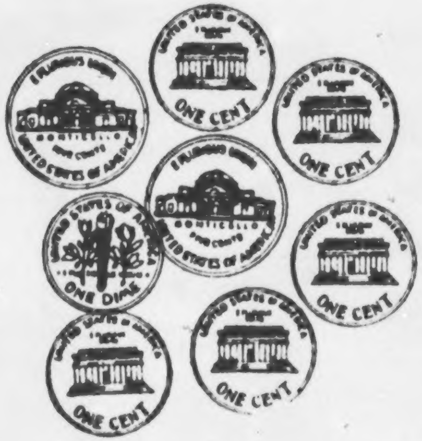
SKILL M: To identify two sets of coins that are equal in value.

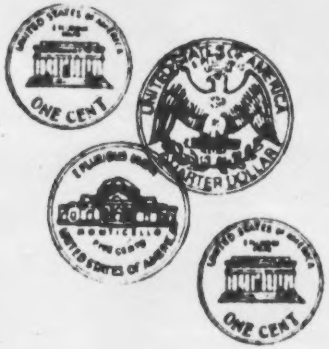
FIRST ACTIVITY FOR SKILL M

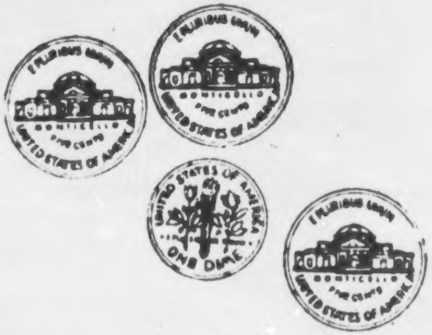
Prepare a ditto with rows of coins with three sets in each row. The children can circle the two sets of the three that have the same value. They should write the value next to each set.

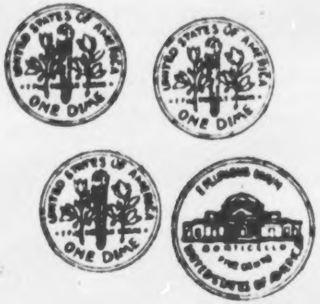
FIRST ACTIVITY FOR SKILL M

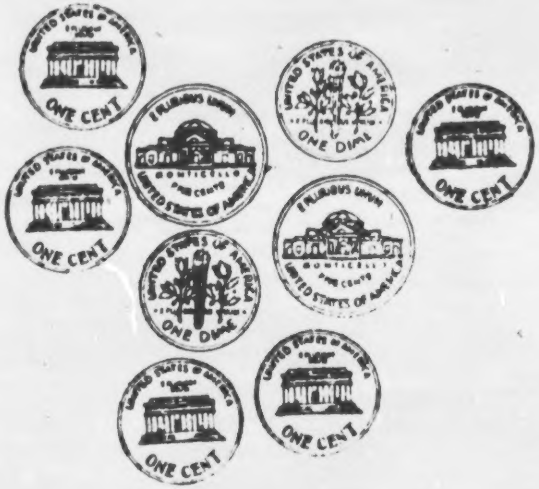
CIRCLE THE SETS THAT ARE WORTH THE SAME IN EACH ROW

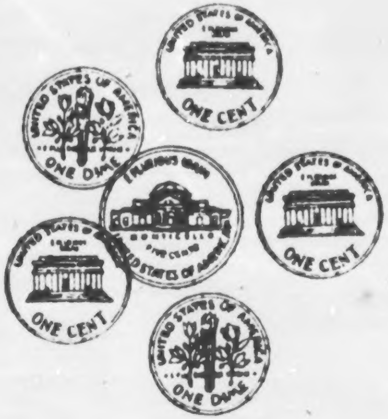












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SKILL N: To complete an addition table to find the sums using money.

FIRST ACTIVITY FOR SKILL N

The teacher prepares a matrix with money on the chalkboard or on cardboard. Children use the table to complete the addition facts.

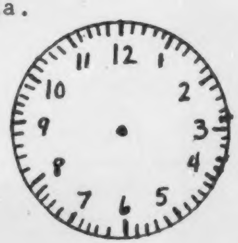
Add one row of coins across to one column of coins down and put their sum where the row and column meet.

+	1¢ 1¢ 5¢	1¢ 1¢ 1¢ 5¢	1¢ 1¢ 1¢ 1¢ 5¢	5¢ 5¢	1¢ 10¢
1¢ 1¢	9¢				
1¢ 1¢ 1¢					
1¢ 1¢ 1¢ 1¢				14¢	
5¢					
5¢ 1¢					

WORD PROBLEMS: Time and Money

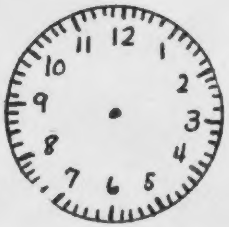
1. Ana se montó en la guagua a las 8:00 a.m. Tardó 15 minutos en llegar a la escuela. ¿A qué hora llegó a la escuela?

____

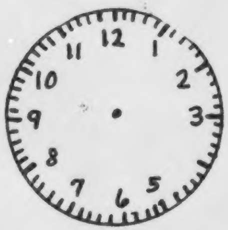

12
1
2
3
4
5
6
7
8
9
10
11

2. Los niños almuerzan a las 12:00. El almuerzo dura media hora. ¿Cuántos minutos tienen los niños para almorzar?

______________ minutos

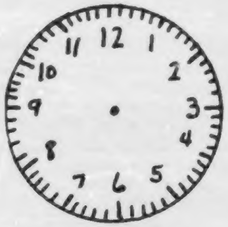

12
1
2
3
4
5
6
7
8
9
10
11

3. María vió los camiones de los bomberos frente a su casa a las 2:10. Ella los vió irse 20 minutos más tarde. ¿A qué hora se fueron los bomberos?

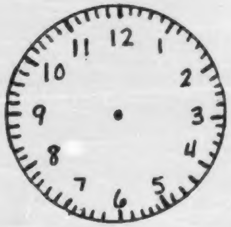

12
1
2
3
5
6
7
8
9
10
11

4. La tarea de Pedro es sacar la basura afuera. A él le gusta ver el camión que la recoge. Hoy Pedro sacó la basura a las 8:30. El camión llegó a las 8:40. ¿Cuántos minutos esperó Pedro?

____________ minutos

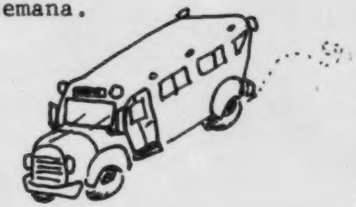


5. Ana y María se montaron en el tren a las 3:00 p.m. para ir a visitar su abuela. Su abuela las recibió a las 4:00 p.m. ¿Cuánto tiempo estuvieron viajando en el tren?



WORDS PROBLEMS INVOLVING DAYS, WEEKS, MONTHS (AND TRANSPORTATION)

1. Ana viaja en la guagua de la escuela todos los lunes, miércoles y viernes de la semana. Los otros dos días su papá la lleva en carro. ¿Qué días viaja con su papá?



_______ _______

2. Juan fue en la guagua a un campamento para una estadía de dos semanas. ¿Cuántos días paso en el campo?

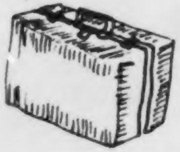
_______ dias.

3. La primera semana en el campamento estuvo soleado y los niños fueron a nadar todos los días. Juan sabía nadar muy bien y le dejaron usar los botes todos los días. ¿Cuántos días fue Juan a remar en los botes?

____

4. Hoy es junio 10. Ana y su mamá tienen boletos para su viaje a Puerto Rico. Los boletos estan fechados para una semana más tarde. ¿En qué fechá salen de viaje para Puerto Rico?

____



5. Carlos vive cerca de un parque donde puede ir a correr a caballos desde junio hasta agosto. El puede ir a correr a caballos __________ meses.

6. Los niños van a la escuela desde septiembre hasta junio. Ellos van a la escuela for __________ meses.

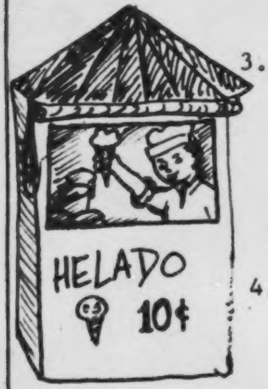
WORD PROBLEMS: MONEY

1. Juan tiene 75¢. El quiere llevar sus dos hermanitas a la machina. Los boletos son a 25¢ por cada carrera. ¿Cuántos boleto puede comprar?

________ boletos.

2. Ana le gusta montar en los carritos locos. Ella necesita una peseta y un niquel para cada boleto. ¿Cuántos centavos cuesta la carrera en los carritos locos?

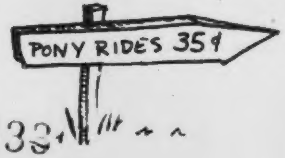
________ centavos.



3. María tiene 40¢. Ella se montó en la estrella y le costó 20¢. ¿Cuánto dinero le queda?

____

4. Juan tiene un $1.00. Sus dos hermanitas quieren montarse en los caballitos. Los boletos para los caballitos cuestan a 35¢ cada uno. Las barquillas de helado cuestan 10¢. Si Juan compra dos boletos para las carreras de los caballitos. ¿Cuántos helados puede comprar?



____

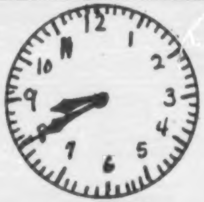
TIME - TEST

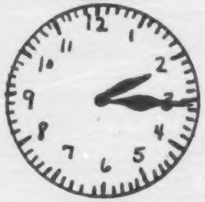
1. Parea las horas correctas con el reloj.

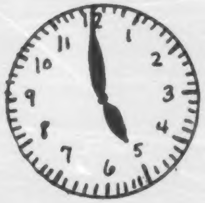
5:00

8:40

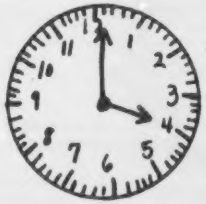
2:15

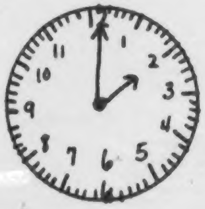


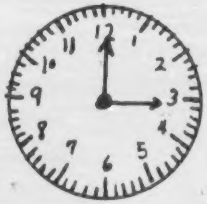




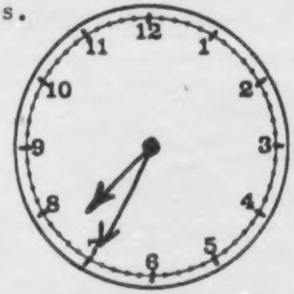
2. María llega de la escuela a las 3. Pón una x debajo del reloj que indica la hora que María llega de la escuela.







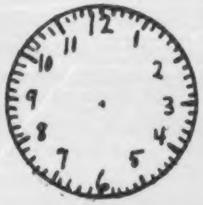
3. Llena los espacios vacíos.



después de las ________

antes de las ________

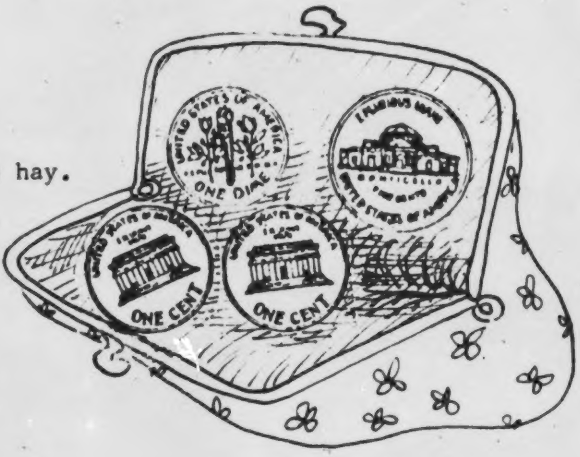
4. Juan coje la guagua de la escuela a su casa. Juan se monta en la guagua a las tres. Llega a su casa a las tres y cuarto. ¿Cuánto tiempo se echa Juan en llegar a su casa?



_________minutos

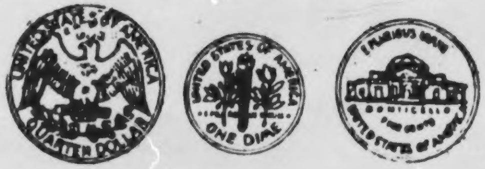
MONEY - TEST

1. Marca con un círculo el numeral que te indica cuánto dinero hay.

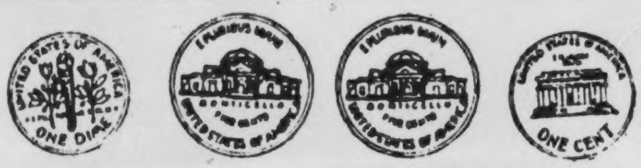

ONE DIME
ONE CENT
ONE CENT

18¢ 20¢ 17¢

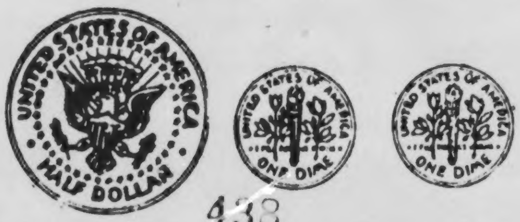
2. Escribe el valor total de cada grupo de monedas.


UNITED STATES OF AMERICA
QUARTER DOLLAR
ONE DIME

= ______


ONE DIME
ONE CENT

= ______


UNITED STATES OF AMERICA
HALF DOLLAR
ONE DIME
ONE DIME

= ______

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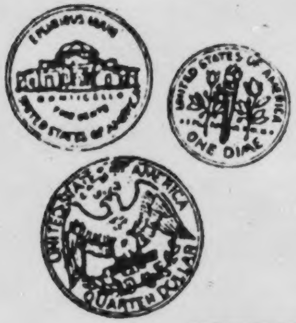
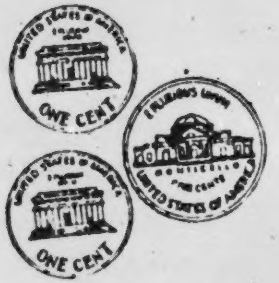
3. TIENES


E PLURIBUS UNUM
MONTICELLO
UNITED STATES OF AMERICA
ONE DIME
QUARTER DOLLAR

____¢

GASTAS


UNITED STATES OF AMERICA
ONE CENT
MONTICELLO
ONE CENT

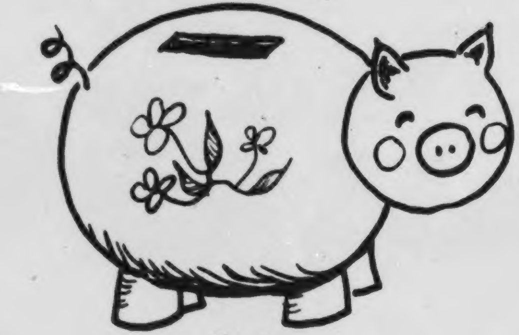
____¢

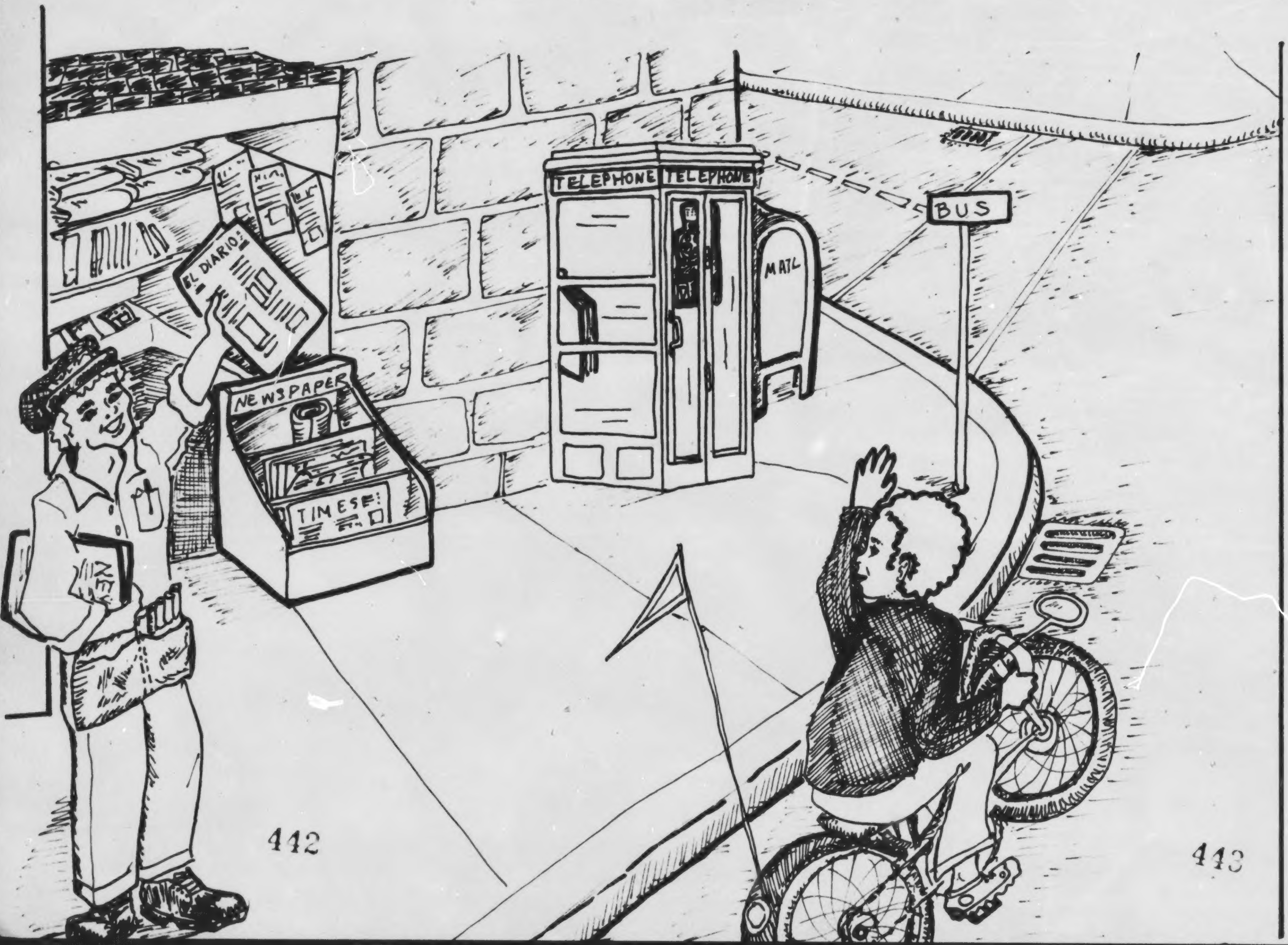
TE SOBRA

____ - ____ = ____¢

4. Ana tiene 25¢ en su alcancía. Si ella le echa 10¢ más, ¿cuánto dinero tendrá ella en la alcancía?

________.




EL DIARIO
NEWSPAPER
TIMES
TELEPHONE
TELEPHONE
MAIL
BUS

UNIT VII: COMMUNICATION - Measurement

SKILL A: To recognize the difference in units of linear measure.

SKILL B: To use the inch as a unit of measure.

SKILL C: To measure the length of an object to the nearest inch.

SKILL D: To give the measurement of the height of an object to the nearest foot.

SKILL E: To measure the length and width of an object to the nearest inch.

SKILL F: To measure an object in feet and inches to the nearest inch.

SKILL G: To give the measurement of the height or length of an object to the nearest yard.

SKILL H: To use the centimeter as a unit of measure.

SKILL I: To know different uses of linear measurement.

SKILL J: To compare the weights of two given objects (by hand and with a balance) and state weight relations (weighs heavier, lighter, about the same) between objects.

SKILL K: To identify and use cups, pints and quarts as units of liquid measure.

SKILL L: To read a thermometer.

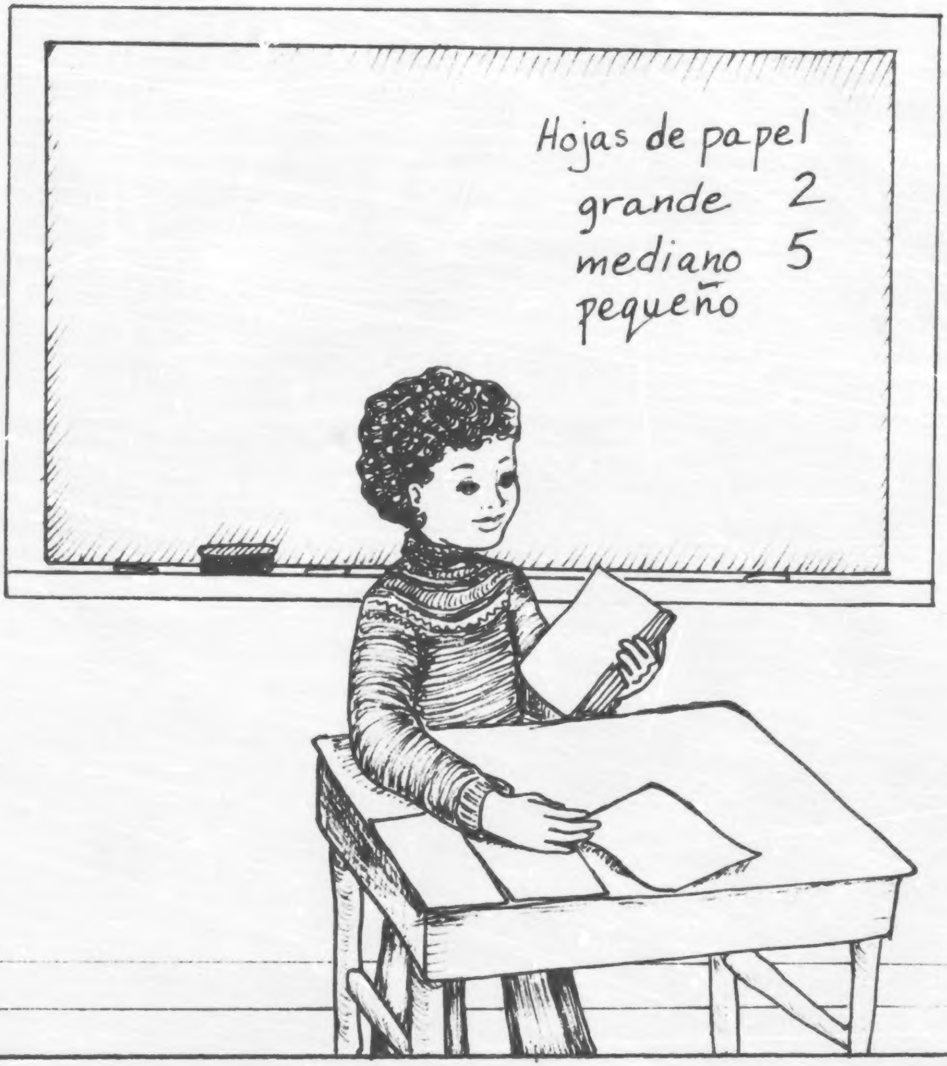
SKILL A: To recognize the difference in units of linear measure.

VOCABULARY:
length
width
height
measure
measurement
inch
foot
yard
unit

FIRST ACTIVITY FOR SKILL A

Hold up a paper and ask the children how many sheets of paper are needed to be placed from end to end across the front of your desk. Following a short period of discussion and estimation, have a child try it. Stress the importance of careful end to end placement and counting of the sheets. When the sheets have been placed across the desk the last sheet may not fit exactly at the edge of your desk. If more than half of the length of this sheet must be used, then the sheet should be included in the count. If less than half of the sheet is needed, it should not be included in the count. If just half the paper is needed it may be counted or not as the children wish. Repeat this activity several times with different size pads of paper. Record each measure in terms of the size of the paper and help the children see that the number assigned to the length of the desk depends on the unit of measure which has been chosen.

FIRST ACTIVITY FOR SKILL A


Hojas de papel
grande 2
mediano 5
pequeño

SKILL B: To use the inch as a unit of measure.

VOCABULARY: inch
unit

FIRST ACTIVITY FOR SKILL B

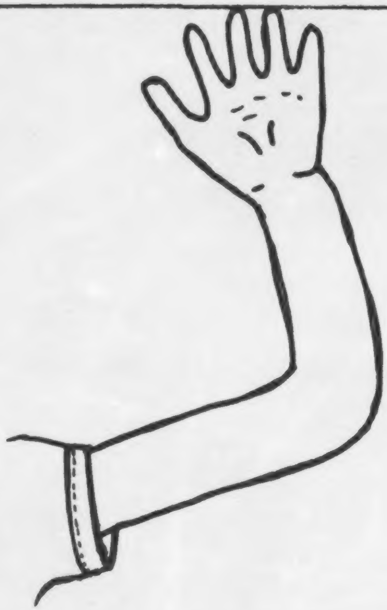
Cut three pieces of string, each of which is the width of students' desks. Cut one string in four equal parts, another into five equal parts, and the third into six equal parts. Give the pieces of string to fifteen different students, without letting them realize the difference in length, and ask them to measure the width of their desk. Remind them that lengths of the string may be called "una unidad." After each student has finished their measurement, record each measurement on the board. Look together at the 15 answers and see if there are any the same. They will discover three groups of the same answers. Ask those students who had the same answers to get together in a group to compare the size of their pieces of string. They should see within their group that their strings are all the same length. From this the class should understand that to get the same answer for a measure of length we must all agree to use the same unit of measure.

SECOND ACTIVITY FOR SKILL B

Give the students unmarked cardboard strips twelve inches long and a one inch square of cardboard. Have them make their own ruler by using the one inch piece of cardboard to mark off units.

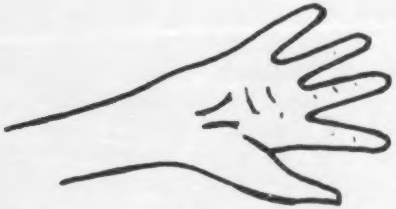
THIRD ACTIVITY FOR SKILL B

Help students enjoy looking into early forms of measure used before the present standards of length were determined.

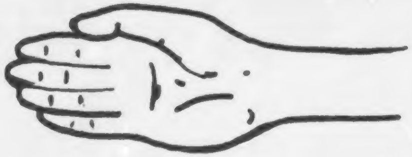


THIRD ACTIVITY FOR SKILL B

Cubit: the length of the forearm from the elbow to the top of the middle finger of the open hand.



Span: the length from the top of the thumb to the top of the little finger of the outstretched hand.



Palm: the breadth of the four fingers side by side.

SKILL C: To measure the length of an object to the nearest inch.

VOCABULARY: length
nearest inch

inchworm.....
1
2
3
4
5

FIRST ACTIVITY FOR SKILL C

Have the children work in pairs to measure one another. Ask each child to measure first his partner's arm from the elbow to the tip of the longest finger, then his leg from the knee to the ankle. In each instance, have the children measure to the nearest inch-- the measurement must be rounded to the nearest inch.

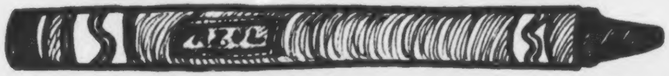
SECOND ACTIVITY FOR SKILL C

The teacher should have available enough rulers for all the students to measure the pictured objects on the following page. Walk about the room as the children work, to make sure that they measure by placing the one inch end of the ruler exactly as possible, that is, at the tip of each object.

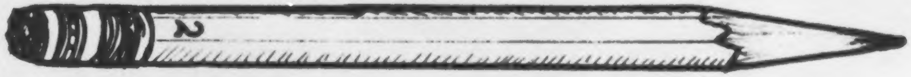
THIRD ACTIVITY FOR SKILL C

Mide cada uno de estos objetos en pulgadas.

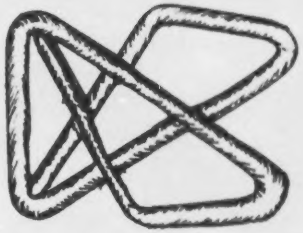
______ pulgadas



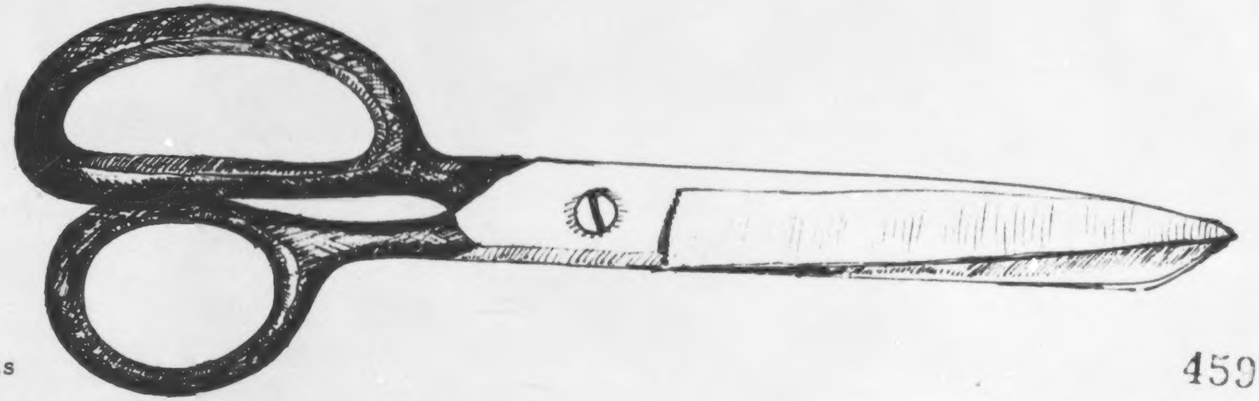
______ pulgadas



______ pulgadas

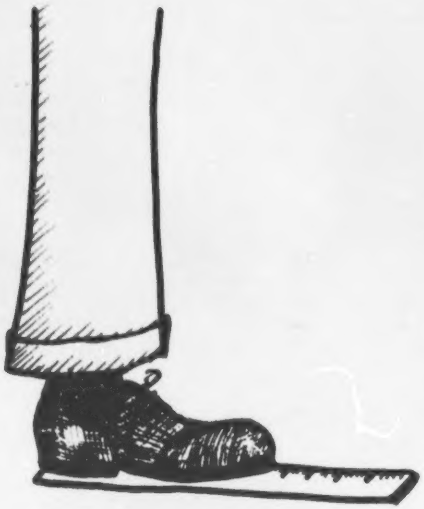


______ pulgadas



FOURTH ACTIVITY FOR SKILL C

Have the children place their rulers on the floor to measure one of their shoes. Help each child put his heel as close to the 1-inch end as possible. Then have each child tell to the nearest inch where the toe of his shoe comes.

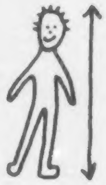
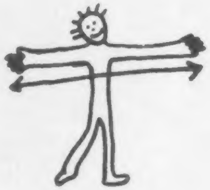
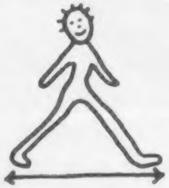
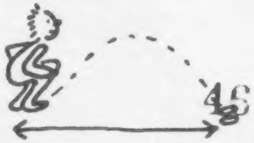


SKILL D: To give the measurement of the height of an object to the nearest foot.

VOCABULARY:
height
nearest foot

FIRST ACTIVITY FOR SKILL D

Show a 12-inch ruler to the children. "¿Cuántas pulgadas tiene esta regla?" When the students reply that it is 12 inches long, ask if they know another name for 12 inches. If they do not, tell them that 12 inches is also called one foot. "Si Ismael mide 3 pies, ¿Cuántas de estas reglas se necesitan para medir 3 pies?" Help the children see that if a child is 3 feet tall, it takes 3, 12-inch ruler lengths to measure him. Have the children work in groups of two or three to measure some of the things in the classroom. The children may also measure one another's height, arm span, stride and how far each can jump from a standing position. Record the measurements to the nearest foot on the following worksheet. Give each pair one worksheet.

________ Nombre	________ Nombre
 ______ pies	______ pies
 ______ pies	______ pies
 ______ pies	______ pies
 ______ pies	______ pies

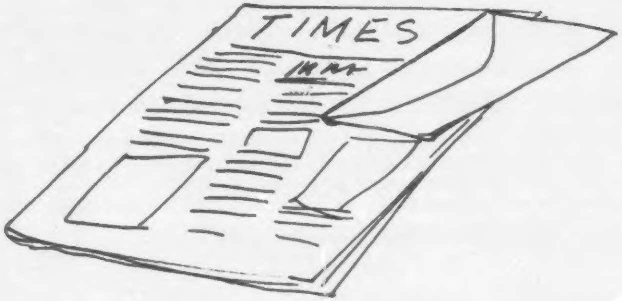
SECOND ACTIVITY FOR SKILL D	Have the children think of some measurements they want to make - height of the drinking fountain, width of the chalkboard, length of an automobile. Then have them draw pictures of the objects they want to measure. After finding each measurement to the nearest foot, have them write the appropriate numeral next to the picture of the object.

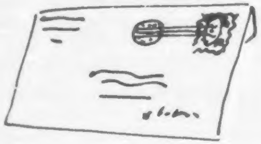
SKILL E: To measure the length and width of an object to the nearest inch.

VOCABULARY: length
width

FIRST ACTIVITY FOR SKILL E

Explain the terms, length and width, and have each student measure his and her desks for length and width with their rulers. The class can then be broken up into small groups or have the children choose partners. Challenge the groups to find objects in the classroom that have something to do with communication and measure the objects for length and width. Have available some newspapers, materials for letter writing (including stamps) and drums. This activity can be extended outside the classroom by measuring mailboxes, fireboxes, televisions, phone booths and other means of communication.





SKILL F: To measure an object in feet and inches, to the nearest inch.

FIRST ACTIVITY FOR SKILL F

Ask someone to read the first sentence at the top of the activity sheet. Then ask someone else to read the story situation involving the measurement of a table. Talk about this, and then have the children read the list of suggested items to be measured. ¿Cuántos de estos objetos están en nuestro salón? ¿Qué otra cosa se puede medir en nuestra aula (salón)? Help the children to consider the possibilities. Have them begin. Make certain they write their measurements beside the names of the objects.

A veces medimos primero en pies, y después medimos lo que falta en pulgadas.

Enrique y Ricardo midieron la mesa.
La mesa media ocho pies de largo y le faltaban 7 pulgadas.

Busca algunas de estas cosas.
Mide cada uno en pies y pulgadas.

El cordón de el toca discos ____________________.
Tu altura ______________________________.
El largo de la correa de tu amigo ______________.
Un pupitre ____________________________.
Una puerta ____________________________.
Una ventana ___________________________.
La pizarra ____________________.

SECOND ACTIVITY FOR SKILL F

Suggest a chart that lists the height, measured in feet and inches, of each child. Mark off feet and inches on the wall. Tell the children to use this ruler to measure each other's height. Have them prepare a chart and fill in the information.

THIRD ACTIVITY FOR SKILL F

Cut several pieces of string, varying in length from 1 foot to 4 feet. Give one piece to each child, and ask him to measure it and to record its number of feet and number of inches, to the nearest inch, on a sheet of paper. Now assign pairs of children to work together. Have each partner check the other's measurement for accuracy. Have the second measurement written beside the first. How do the measurements compare? Tell each pair to exchange pieces of string with another pair. Call for two measurements for each piece, so a comparison can be made. When the students get different measurements for the same string, have them try to figure out which number is correct.

SKILL G: To give the measurement of the height or length of an object to the nearest yard.

VOCABULARY: nearest yard

FIRST ACTIVITY FOR SKILL G

Review briefly the unit measures of inch and foot. Then show the children a yardstick. ¿Cuántos pies tiene? Someone may suggest measuring it by placing a foot ruler on it. Let several children take turns measuring objects with the yardstick while the others watch. If necessary, help them when the object they are measuring is not an exact number of yards. Here again, stress the approximate nature of measurement.

SECOND ACTIVITY FOR SKILL G

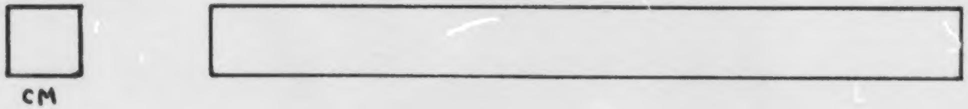
Take the children outside to measure things. Using a yardstick, they might measure a mailbox, the height of a stop sign; or using a 12-inch ruler, they might measure a blade of grass or a twig from a tree. Have a few students carry note pads, and ask them to write down some of the measurements. The children can take turns measuring and recording. Encourage the group to be careful in their measuring.

SKILL H: To use the centimeter as a unit of measure.

VOCABULARY: centimeter

FIRST ACTIVITY FOR SKILL H

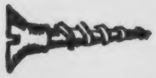
Explain that inches and feet are used in the continental United States now but most places in the world use centimeters as a unit of measure. In fact, centimeters have been used in Puerto Rico for a long time. To establish a concrete feeling of how long a centimeter is, give each student a piece of cardboard that measures one square centimeter. Then give each student a strip of cardboard long enough to make a centimeter ruler. Guide them in placing the square piece and marking the ruler so they are as accurate as possible.



SECOND
ACTIVITY
FOR
SKILL H

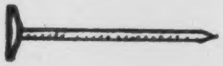
Estimate how many centimeters. Measure in centimeters.

1.



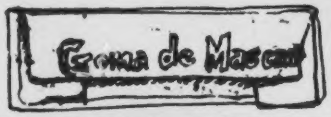
Guess _____ Centimeter Measures _____

2.



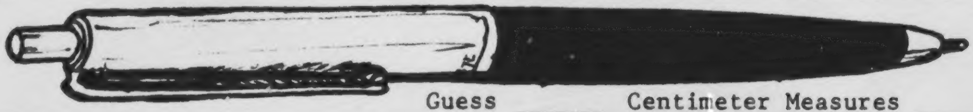
Guess _____ Centimeter Measures _____

3.



Guess _____ Centimeter Measures _____

4.

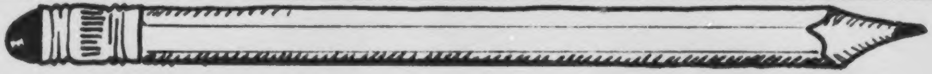


Guess _____ Centimeter Measures _____

5.

Guess _____ Centimeter Measures _____

6.



Guess _____ Centimeter Measures _____

7. How many centimeters in one inch? (Use your ruler and your centimeter square.)

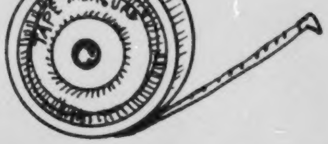
____

BEST COPY AVAILABLE

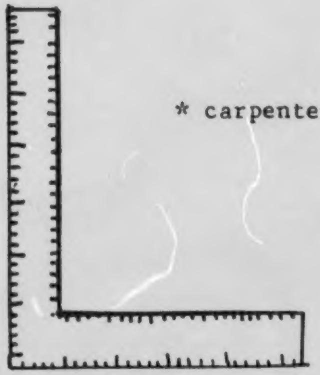
SKILL I: To know different uses of linear measurement.

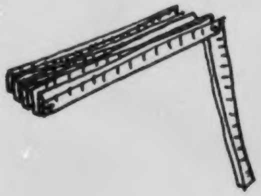
FIRST ACTIVITY FOR SKILL I

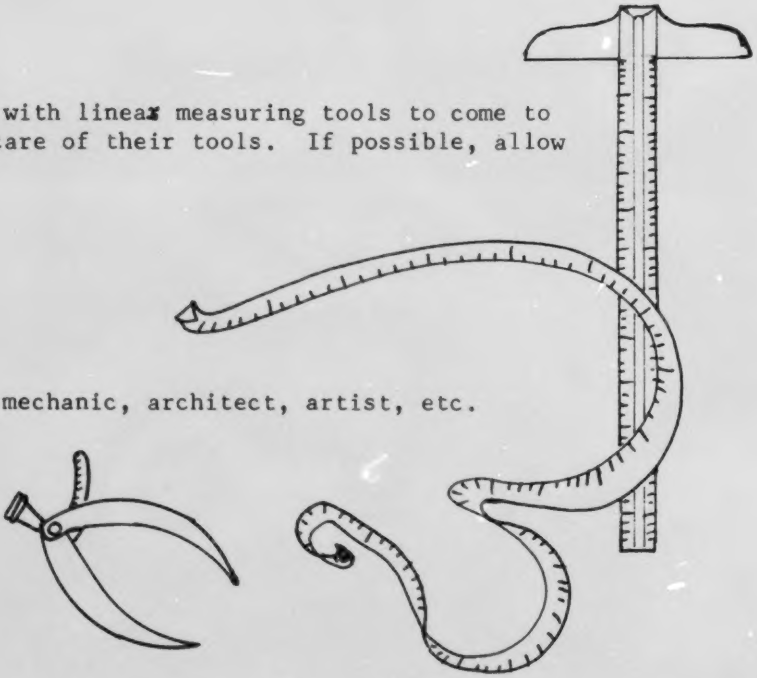
Invite *parents or community people who work with linear measuring tools to come to visit the class and demonstrate the use and care of their tools. If possible, allow the children to touch and try the tools.



* carpenter, seamstress, housewife, plumber, mechanic, architect, artist, etc.





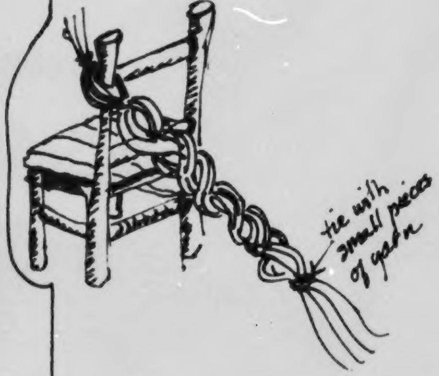


SECOND ACTIVITY FOR SKILL I Have each child choose a construction project which involves measurement with ruler or yardstick.

I

CLOTH CONSTRUCTION

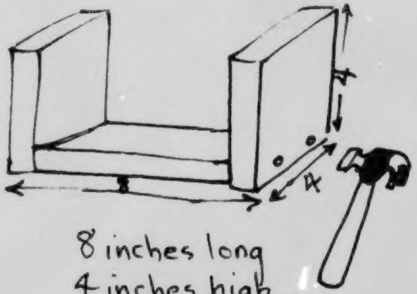
Make a belt a yard long braiding pieces of colorful rug yarn or strips of cloth.


tie with small pieces of yarn

II

WOOD CONSTRUCTION

Build a simple bookend with pieces of wood, nails, glue.

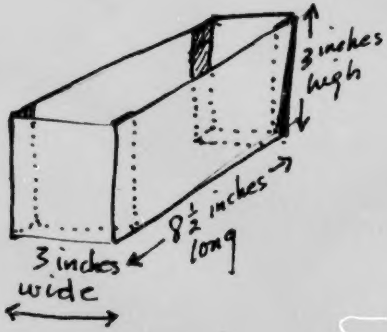


8 inches long
4 inches high
4 inches wide

III

PAPER CONSTRUCTION

Build a cardboard pencil box using scissors and glue.

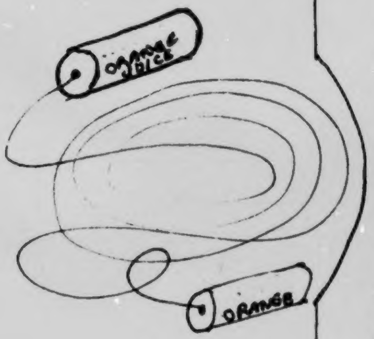

3 inches high
8½ inches long
3 inches wide

see model on following page

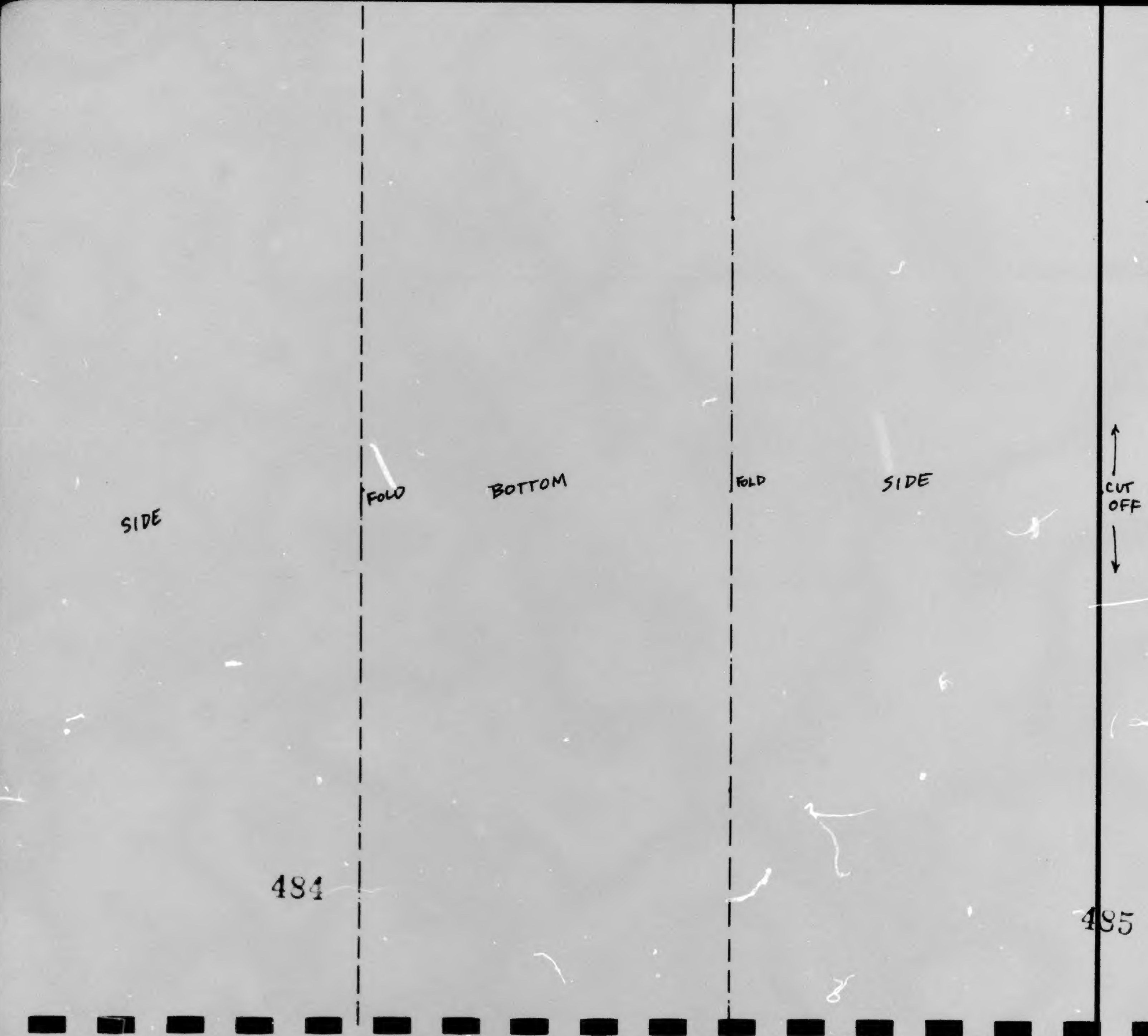
IV

TELEPHONE

Make a telephone or walkie talkie that reach at least five yards using string and cardboard tubes or juice cans.


ORANGE JUICE
ORANGE

SECOND ACTIVITY
FOR SKILL I
CONTINUED


SIDE
FOLD
BOTTOM
FOLD
SIDE
CUT OFF

PAPER
PENCIL

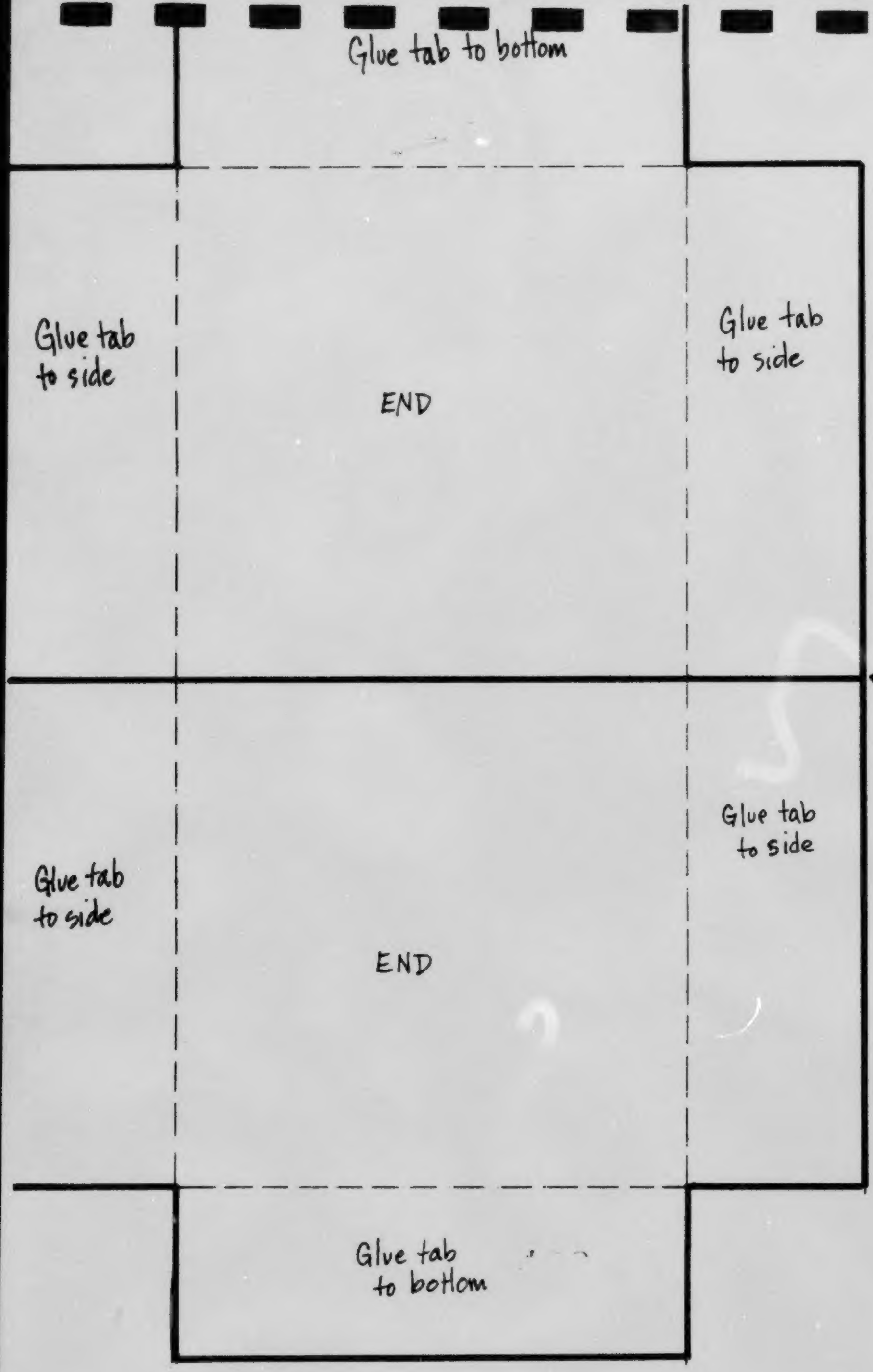
BOX
MEASUREMENTS

3 inches high
3 inches wide
8½ inches long

CONTINUED.

SECOND ACTIVITY
FOR SKILL I
CONTINUED

PAPER PENCIL BOX


Glue tab to bottom
Glue tab to side
END
Glue tab to side
Glue tab to side
END
Glue tab to side
Glue tab to bottom

←cut on heavy lines
fold broken lines

THIRD ACTIVITY FOR SKILL I	Visit a newspaper office and focus on the lay out workers and printers. Point out the need for accurate measurement. The children can return to the classroom and make a newspaper with pictures and stories about their trip.

FOURTH ACTIVITY FOR SKILL I

TELEPHONE GAME

This game should enhance the children's appreciation of how measurement helps communication.

Divide the class into two groups. Give each group equivalent sets of blocks and have them locate themselves out of sight of each other. Have each group choose a "telephone operator" to give and receive communications. One group builds a building with the blocks and communicates the dimensions "by phone" to the other group who will duplicate the original building. All communications must be "by phone" and neither group should see the other's building site until completed. At that time, both groups can compare buildings.

Give each group rulers. Play the game again. When completed, compare buildings and discuss how using rulers contributed to communication. Had the groups invented a unit of measure the first time they played without rulers?

SKILL J: To compare the weights of two given objects (by hand and with a balance) and state weight relations (weighs about the same, heavier, lighter) between objects.

VOCABULARY:

- weight
- height
- heavier
- lighter

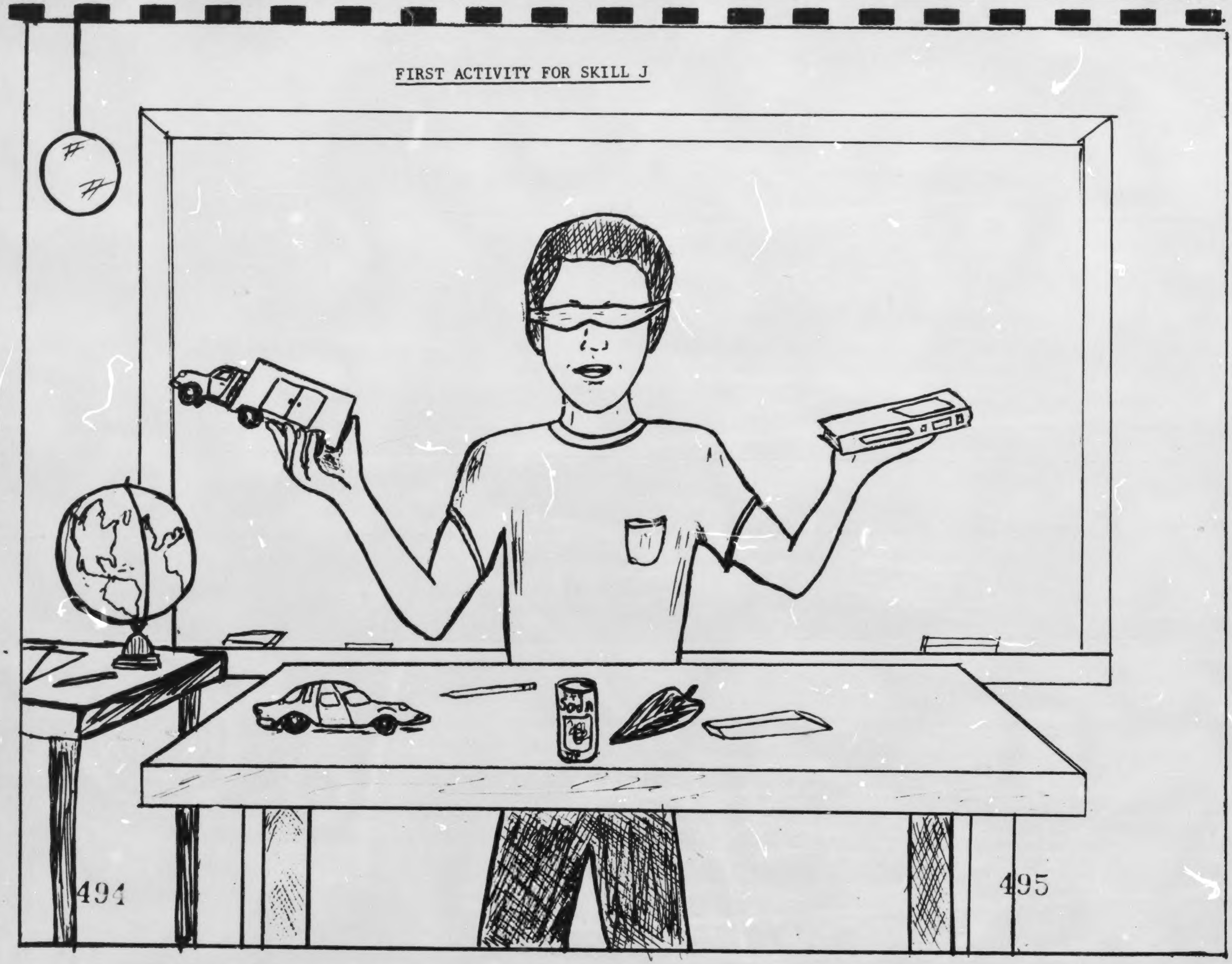
FIRST ACTIVITY FOR SKILL J

Spread the following pairs of articles on a table:

pencil, book
book, leaf
toy truck, toy car
can, eraser

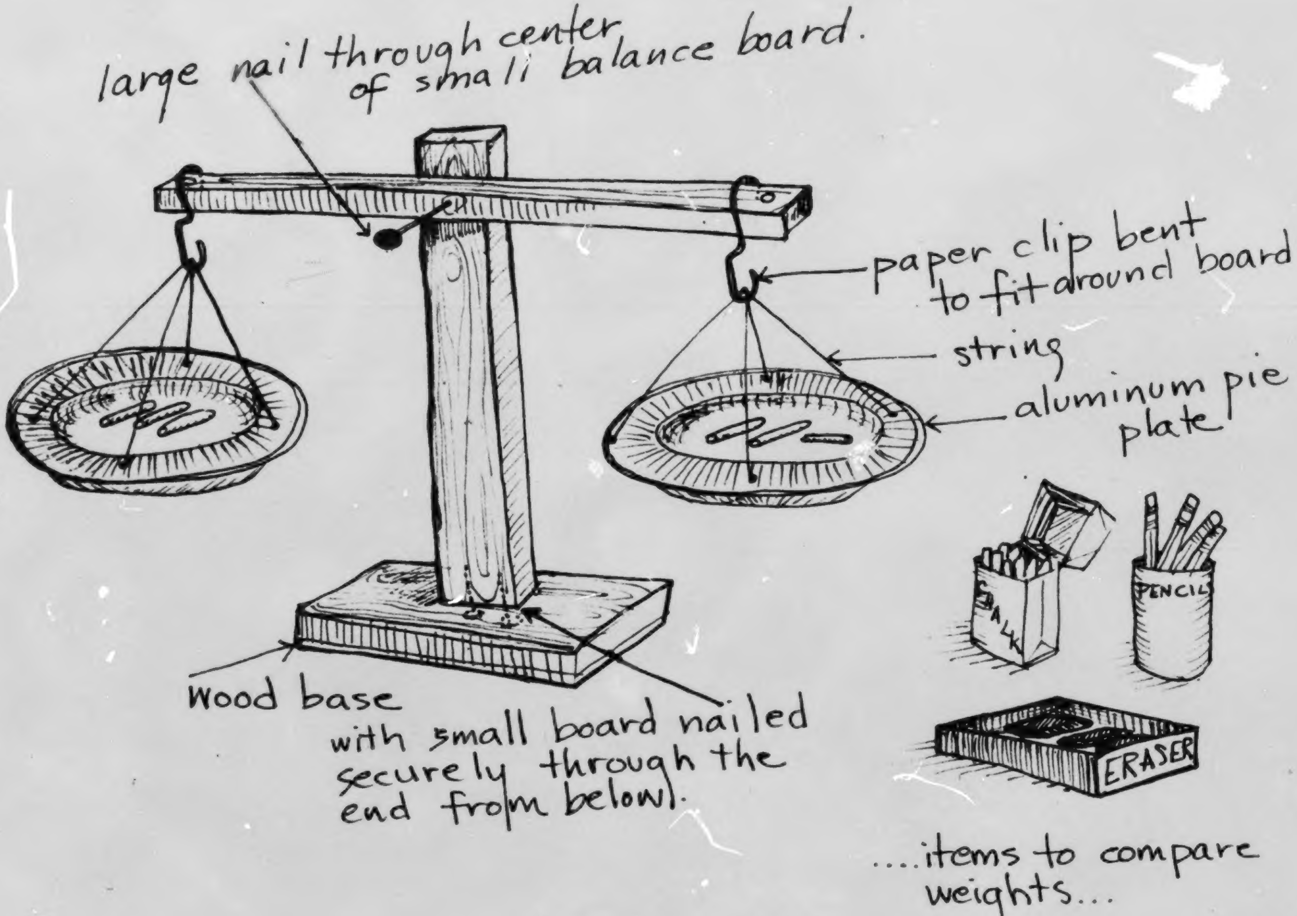
Blindfold a student and have him hold two objects in each hand. Have him tell the class which one is heavier, lighter or which objects weigh about the same.

FIRST ACTIVITY FOR SKILL J



SECOND
ACTIVITY
FOR
SKILL J

Prepare a balance as illustrated. Allow for practice comparing weights of objects.


large nail through center of small balance board.
paper clip bent to fit around board
string
aluminum pie plate
CHALK
PENCIL
ERASER
Wood base
with small board nailed securely through the end from below.
....items to compare weights...

496

497

SKILL K: To identify and use cups, pints and quarts as units of liquid measure.

VOCABULARY:
cups
pints
quarts

FIRST ACTIVITY FOR SKILL K

Have the students work in small groups for this activity. Give each group measuring cups, pint measures and colored water. Show them a quart container such as a milk carton, and tell them that they are to experiment to find out how many pints and how many cups this new unit of volume will hold. Give each group a quart milk carton and appoint a "Recorder" who must note the number of pints of water and the numbers of cups of water it takes to fill the quart. When the groups have finished, the "Recorders" report the results. Should they not agree (two pints and four cups), a class demonstration may be done.

SECOND ACTIVITY FOR SKILL K

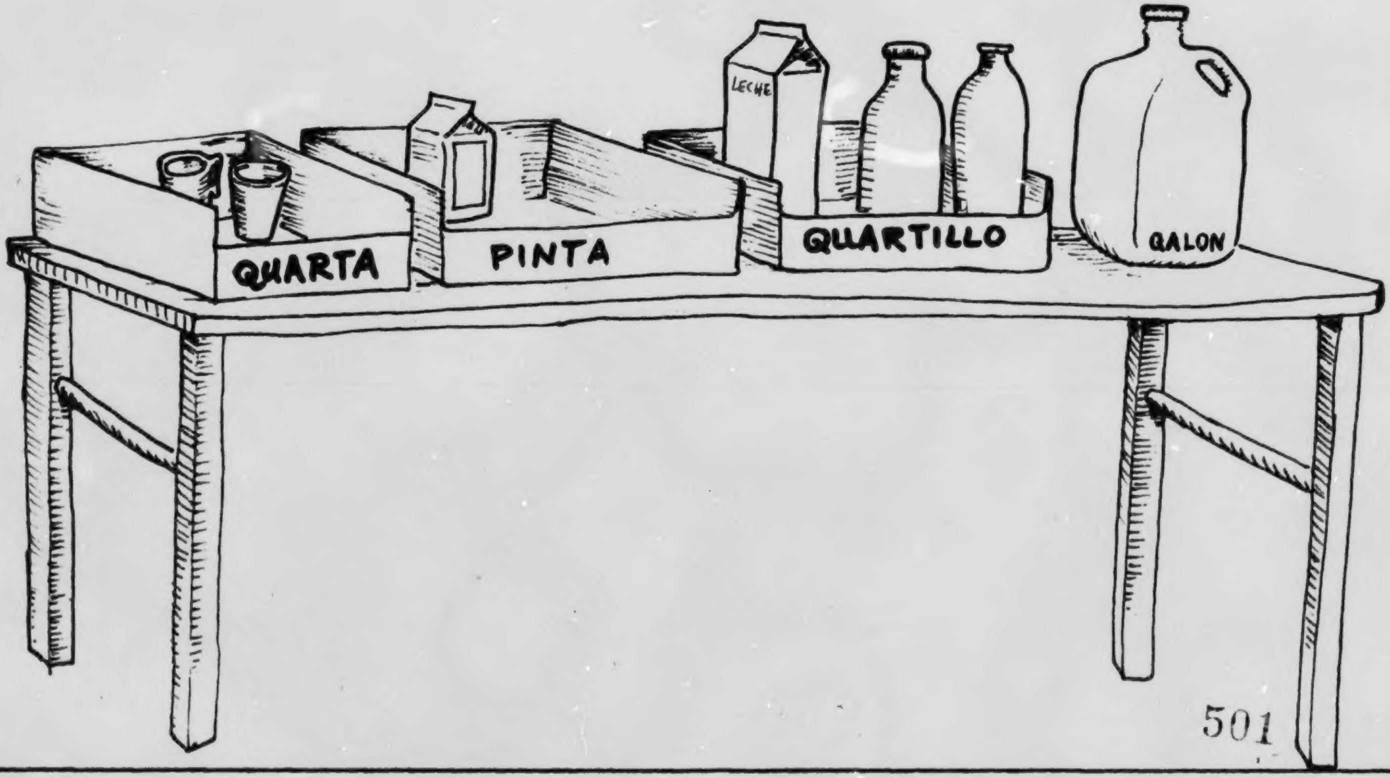
Have the students fill a quart container and then use this water to fill as many pints as they can. Then they can repeat this starting with a quart of water and filling as many cups as they can.

THIRD ACTIVITY FOR SKILL K

Bring to the classroom several bottles that appear to be quart size and have the students guess which one is the true quart bottle. The bottles can be labeled 1,2,3,... Each student can write the numeral he guesses on a card and turn it face down on his desk. You may then have several students test the capacity of the bottles, using pint or cup measures. Any bottle that holds too much or too little water is emptied and placed on its side until only the correct quart is left standing. The students who had guessed its number may hold up their card for all to see.

FOURTH ACTIVITY FOR SKILL K

Have students make a class display of cups, pints and quarts. As well as the familiar milk and cream cartons, they may find cartons of varying shapes such as those used for cottage cheese, ice cream and whipped cream, bottles of all shapes and sizes that have held liquid soap, pint and quart soda bottles, empty fruit cans, Many of the containers will be already marked "1 pint" or "1 quart." The students should test the containers and add them to their display only if they fit correctly into the cup, pint, or quart capacity. In their search for these containers the students will very likely come up with half gallon and gallon jugs. If they do, they should be encouraged to find out for themselves by measuring how many quarts or pints of liquid they hold.



FIFTH ACTIVITY FOR SKILL K Have a small group of students try making one of these recipes for a class treat.

LIMBERS

VERSION #1

1 cup orange juice

$\frac{1}{2}$ cup water

$\frac{1}{3}$ cup sugar

VERSION #2

1 cup evaporated milk

1 cup water

2 teaspoons vanilla

$\frac{1}{3}$ cup sugar

Mix until sugar dissolves. Put liquid in ice cube tray and freeze solid.

ENJOY!!!

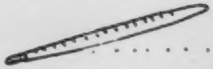
SKILL L: To read a thermometer.

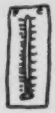
VOCABULARY:
thermometer
temperature
degree

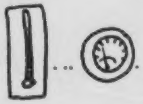
FIRST ACTIVITY FOR SKILL L

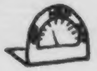
Discuss situations when the students might need some way to describe hot and cold (weather, in the house, refrigerator, freezer, oven, their body). Explain that kind of measuring is called temperature. The unit of measure is a degree. The instrument used is a thermometer.

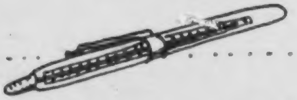
Explain that there are different kinds of thermometers for measuring hot and cold such as:

a doctor uses ....  .... for fevers.

a weatherman uses ....  .... outdoors.

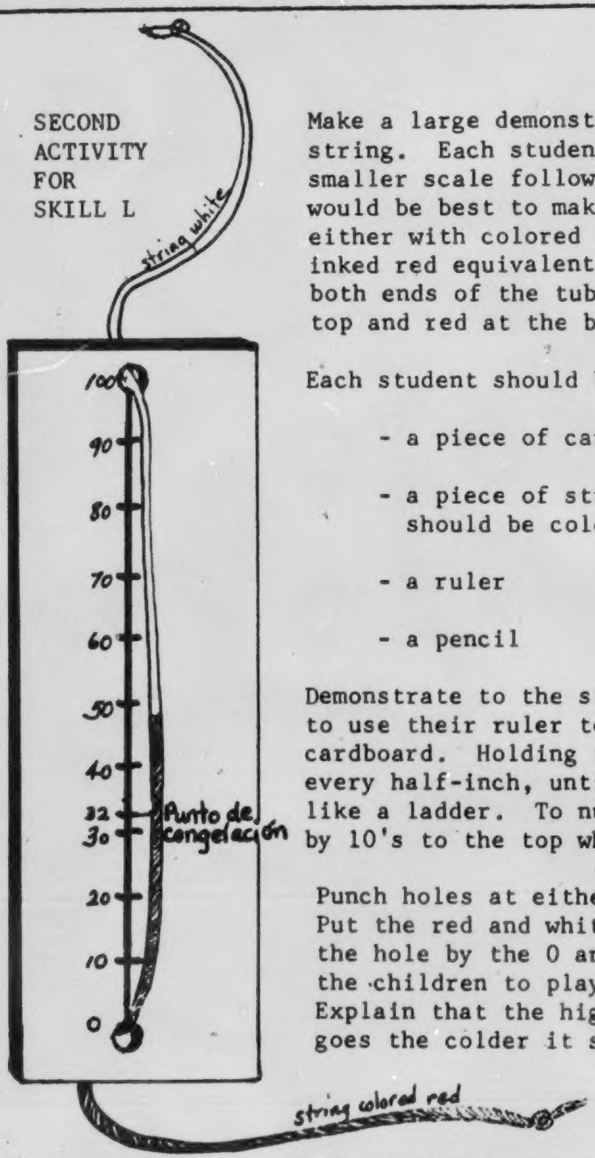
the family uses ......  .... indoors for a furnace.

a baker uses ....  .... in the oven.

ice cream and
candymakers use ......  .... making ice cream
and candy.

Display examples of these thermometers or show the class pictures.

SECOND
ACTIVITY
FOR
SKILL L



Make a large demonstration thermometer on the chalkboard or with tagboard and string. Each student can make his/her own demonstration thermometer on a smaller scale following the steps for making the large classroom model. It would be best to make the temperature indicator bright colored and movable either with colored chalk on the board or a white string which has a portion inked red equivalent in length to the length of the tube. Make a hole at both ends of the tube through which the string can go freely, white at the top and red at the bottom.

Each student should be given the following materials for their thermometers.

- a piece of cardboard or tagboard three inches by six inches
- a piece of string about 15 inches long (half of the string should be colored red)
- a ruler
- a pencil

Demonstrate to the students how they make a "degree number line." Tell the students to use their ruler to make a line five inches long down the middle of their strip of cardboard. Holding their ruler firmly against the line have the students make marks every half-inch, until they have 11 marks including bottom and top. It will look like a ladder. To number the degrees, start at the first mark and write 0. Count by 10's to the top which will be 100.

Punch holes at either end of their numberline (with a sharp pencil or hole puncher). Put the red and white string through the two holes with the red end going through the hole by the 0 and the white end going through the hole at the 100. Encourage the children to play with the movement of the string going up and down the numberline. Explain that the higher the red goes up the tube, the warmer it says and the lower it goes the colder it says.

(CONTINUED)

SECOND
ACTIVITY
FOR
SKILL L
(CONTINUED)

Direct the students to place their red string by the 30. Ask them to move it a little above the 30 to about 32. Make one more mark on the numberline at about 32. Beside that mark write "CONGELADO." Discuss what freezing is. What happens when water freezes?

Show the children the sign for degree on the board. Write an example of a temperature on the board such as 60°. Show the class how a thermometer looks when it reads 60°. Have them each move their strings so their thermometers read 60°. Do more examples of different temperatures, until all the students understand how to read the degree numberline.

THIRD
ACTIVITY
FOR
SKILL L

Bring in an indoor/outdoor thermometer which has clear markings and red fluid in the glass tube. For beginners it is advisable to use only the farenheit scale, rather than confuse the students with the differences between farenheit and centigrade. If possible, use a thermometer which has only the farenheit scale, or cover up the centigrade markings.

The student can take turns measuring and recording the indoor and outdoor temperature at different times of the day and different days of the week. Give enough opportunity to use a real thermometer until all the students can read the farenheit scale. The following chart could be put on the board for temperature readings to be recorded.

	LUNES	MARTES	MIERCOLES	JUEVES	VIERNES
9:00 AM					
11:00 AM					
2:00 PM	510				511
FECHA					

THIRD ACTIVITY FOR SKILL L

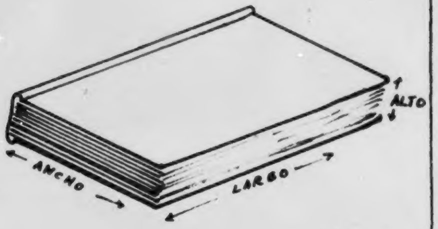
TEMPERATURE CHART

WORD PROBLEMS

1. ¿Cuántas pulgadas mide un pie?

Mide una regla. ________ pulgadas

2. Mide tu libro de matemática.



El libro tiene ________ pulgadas de alto.

El libro tiene ________ pulgadas de largo.

El libro tiene ________ pulgadas de ancho.

3. ¿Cuántos pies mide una yarda?

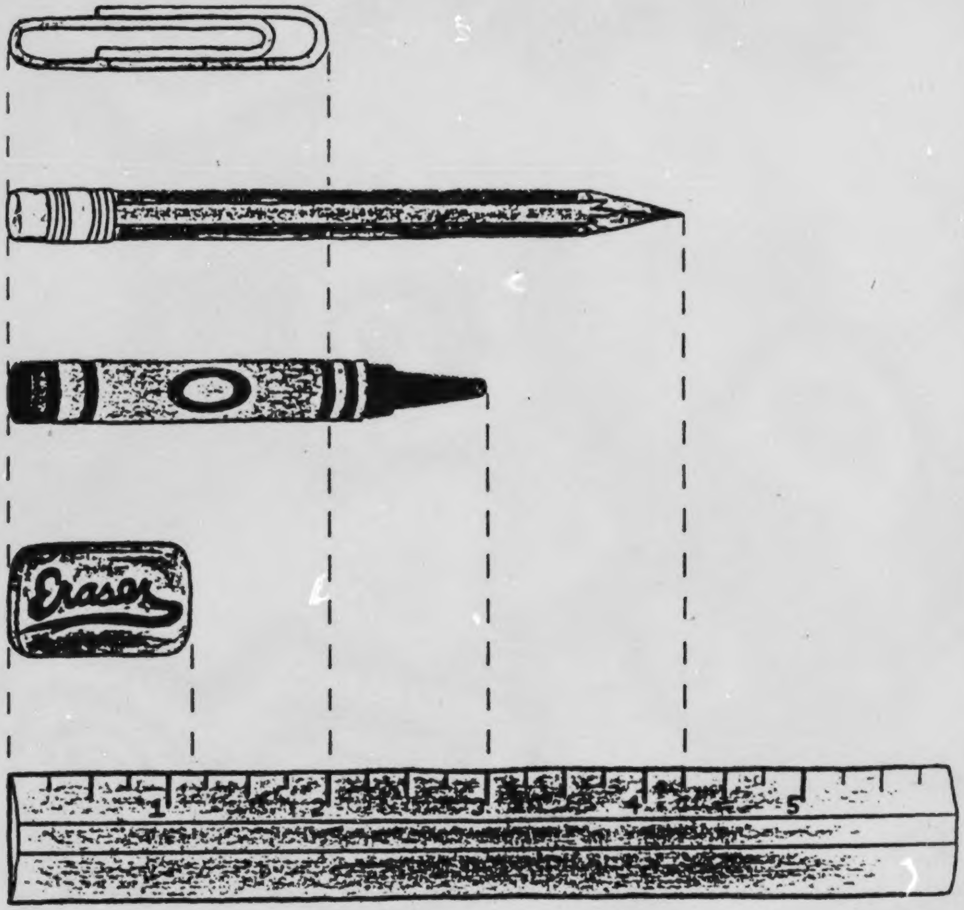
________ pies

1. El pincha papel mide casi _____ pulgadas.

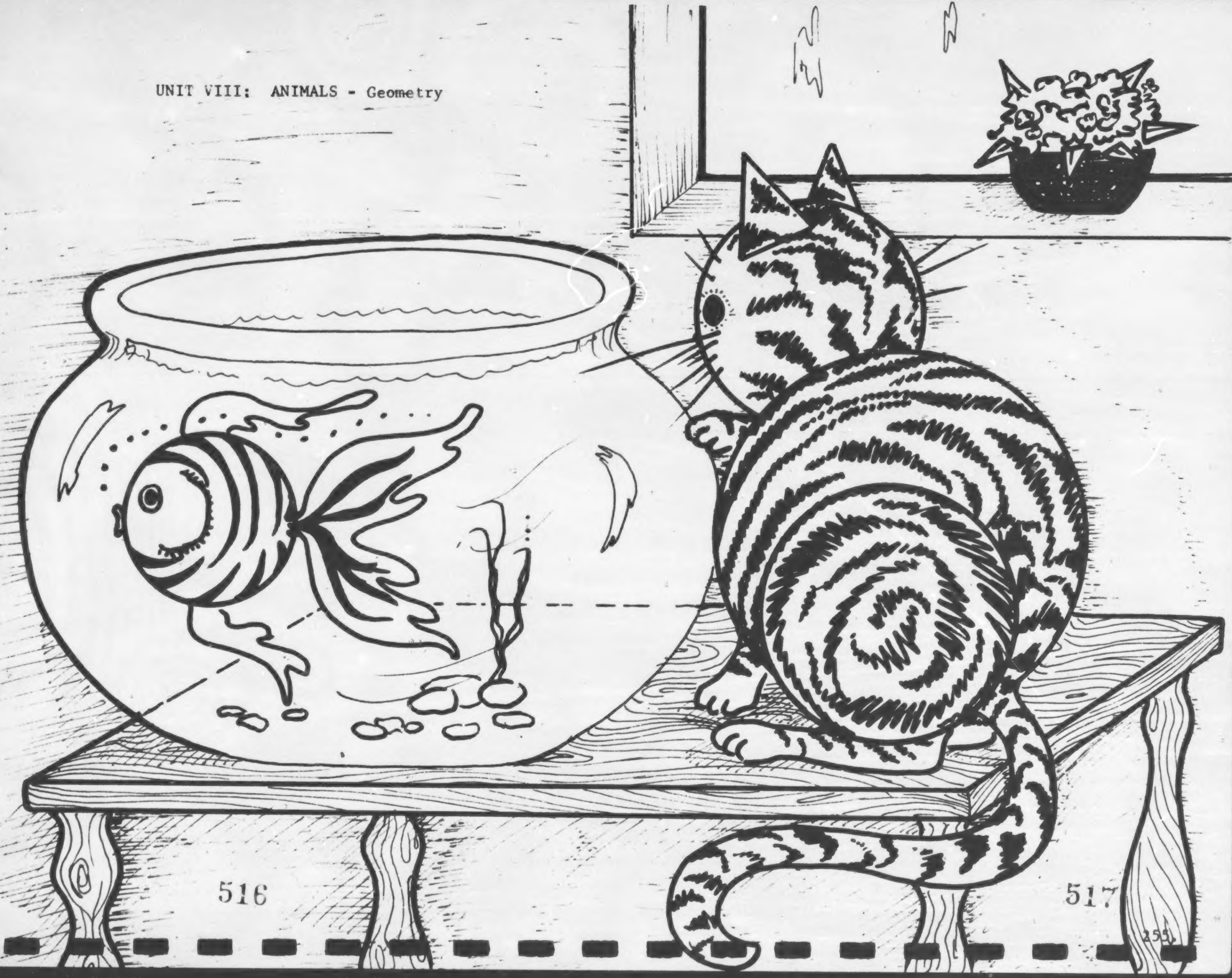
2. El lápiz mide casi ____ pulgadas.

3. La crayola mide casi ____ pulgadas.

4. El borrador mide casi ______ pulgadas.



UNIT VIII: ANIMALS - Geometry



UNIT VIII: ANIMALS - Geometry

SKILL A: To recognize that the shortest distance between two points is a straight line.

SKILL B: To identify a line segment, and draw line segments between named points.

SKILL C: To identify a triangle.

SKILL D: To identify a rectangle.

SKILL E: To identify a circle.

SKILL F: To identify a square and distinguish it from a rectangle.

SKILL A: To recognize that the shortest distance between two points is a straight line.

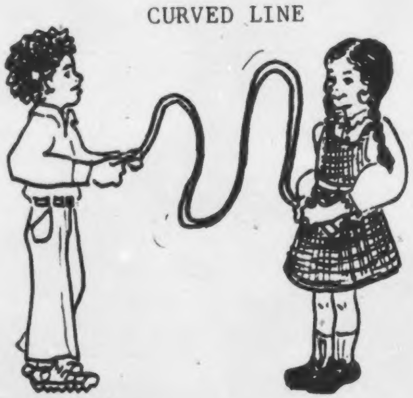
VOCABULARY:
point
between
line

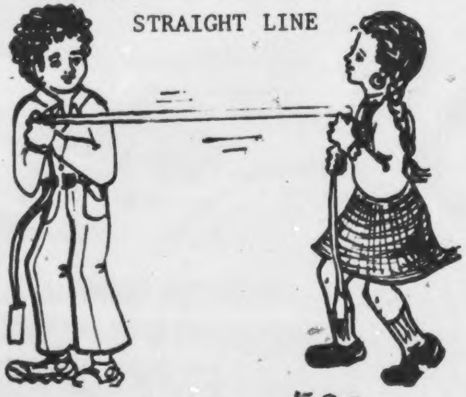
FIRST ACTIVITY FOR SKILL A

Give two students a jump rope and have them stand just a few feet away from each other in front of the class. Name each student "a point" and name the rope "a line." Ask the "two points" to make different lines by moving and wiggling their rope. Point out how those lines will all have curves. Now ask the two students to stay where thev stand and make a line that shows the shortest distance between them. They should pull the rope tight between them and have extra rope in their hands. Ask the class how best to describe this line. Help all the students to see a "straight line" is the shortest distance between two points.

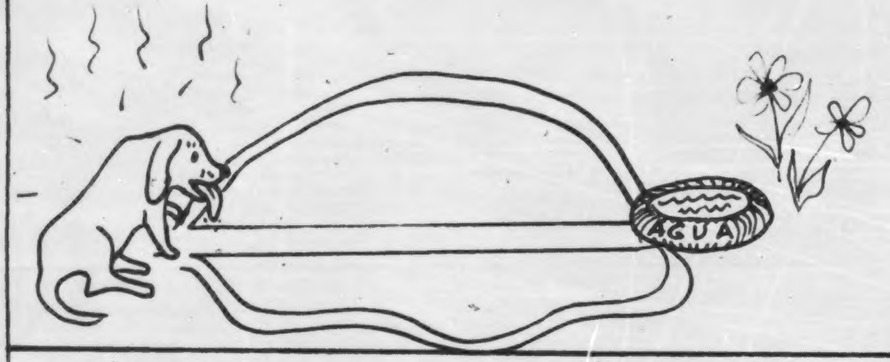
Explain how to make a picture of this idea. Draw two points on the chalkboard and ask a volunteer to show the shortest distance between those two points. After that student draws a line ask if there are any students who think they can show a shorter distance. Give any other students an opportunity to make a shorter line. Help the students to see that the shortest distance between two points is a straight line.

Use the following worksheet to reinforce this geometrical idea.

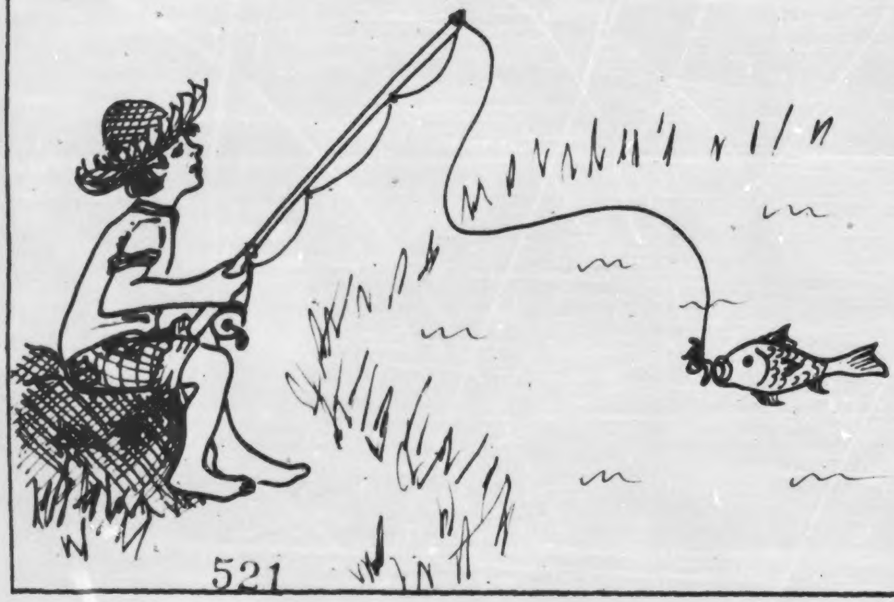




Colorea el camino más corto.



Dibuja la linea de pescar que enseñe que el pez mordió el anzuelo.



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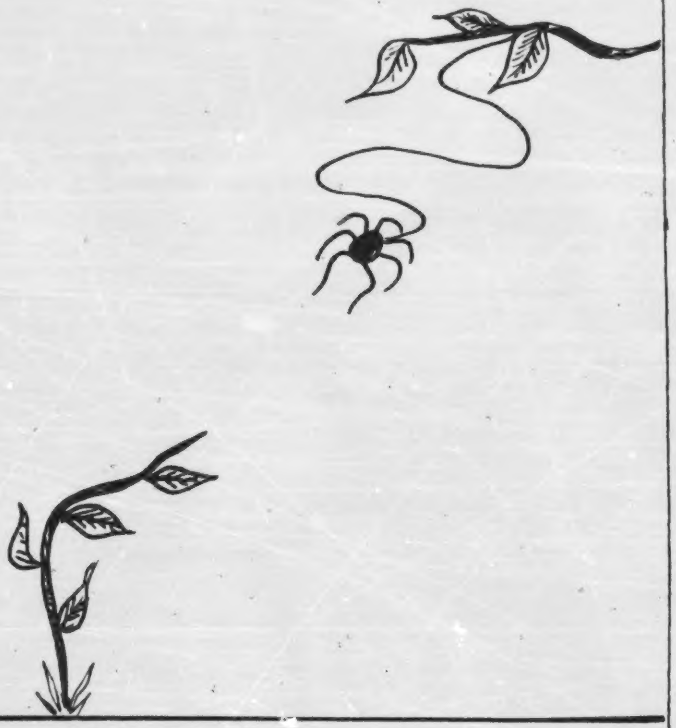
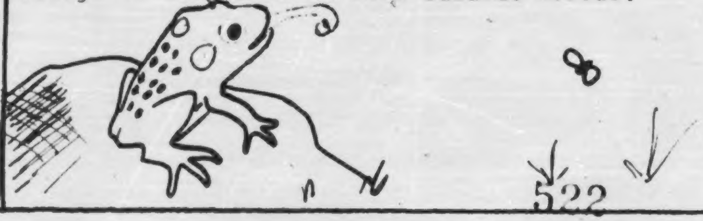
Termina de dibujar la tela de araña como si estuviera suspendida entre las dos ramas.



Dibuja la lengua de la rana cazando moscas.



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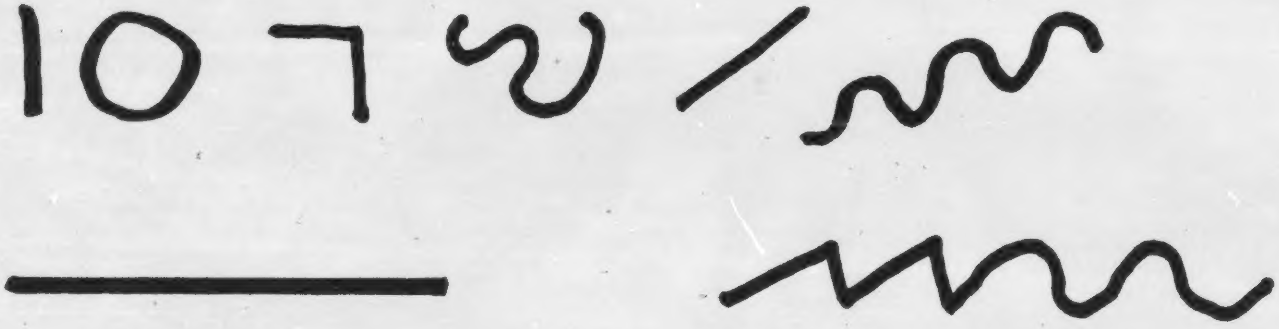
FIRST ACTIVITY FOR SKILL A

SKILL B: To identify a line segment, and draw line segments between named points.

VOCABULARY:
- across
- circle
- flat
- down
- line
- straight

FIRST ACTIVITY FOR SKILL B

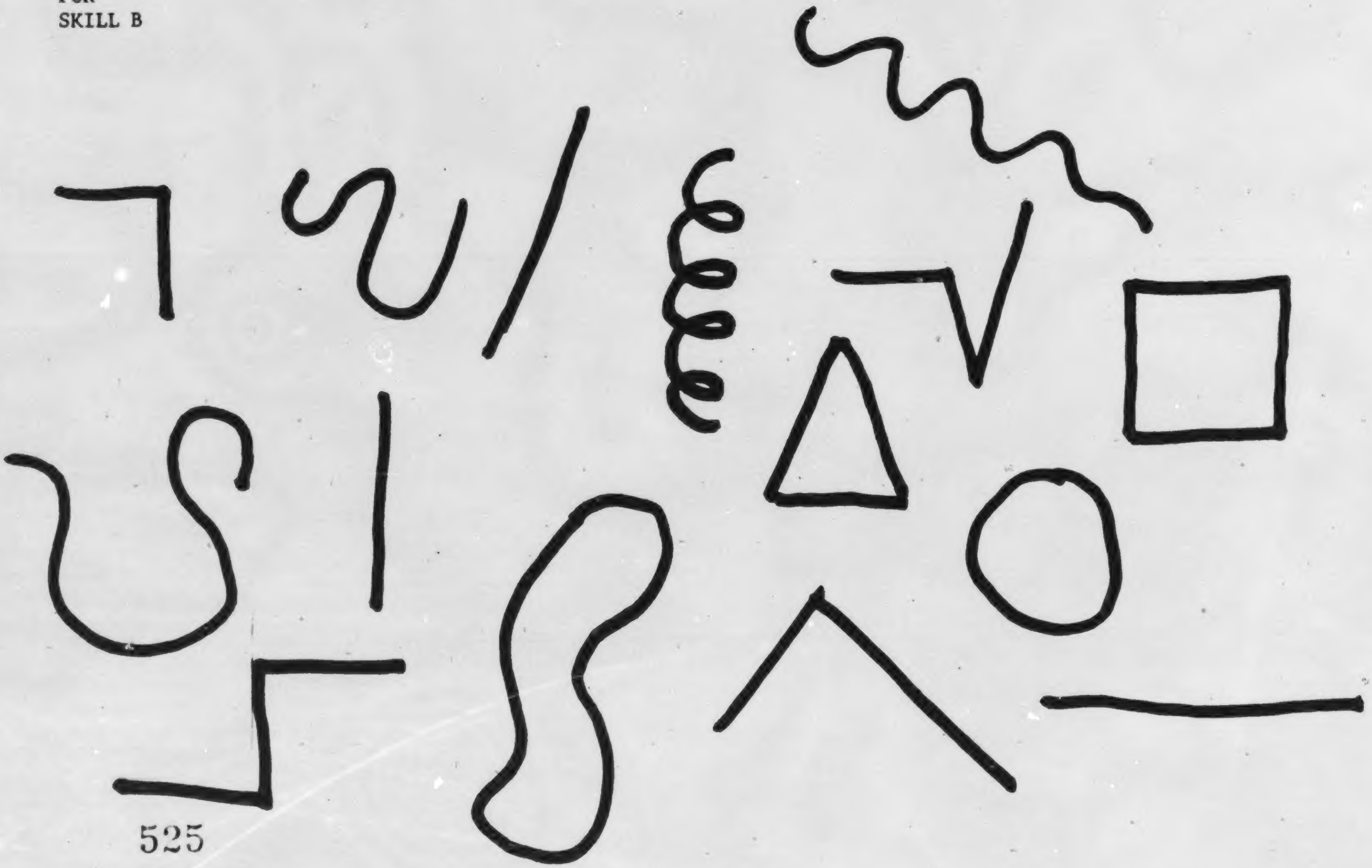
Begin this activity by placing the following collection of figures on the chalkboard:



Ask the children: ¿Cuál es una línea? ¿Cuál no es una línea? Ask the children to identify all the line segments. ¿Por qué son diferentes? Una línea tenía que ser recta. ¿Cuáles son las lineas rectas?

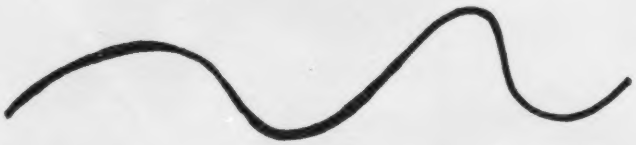
SECOND ACTIVITY FOR SKILL B

Prepare the following activity for the chalkboard. Do this activity with the class, having the children identify line segments.



THIRD ACTIVITY FOR SKILL B

Draw a line segment on the board. Next to it draw a curve. ¿Por qué son diferentes? Lead the children to see that one is straight and the other is not. Point to the straight line.

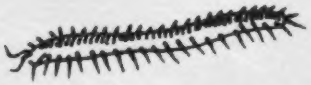


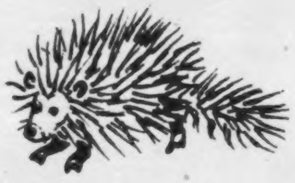
FOURTH ACTIVITY FOR SKILL B

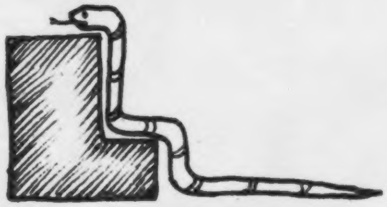
Let the children find all the objects in the classroom that have line segments. Have them list the objects.

FIFTH ACTIVITY FOR SKILL B

Show pictures of the following animals. Ask the children to describe each part of an animal that has a line segment.

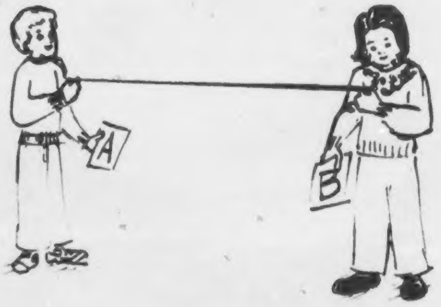


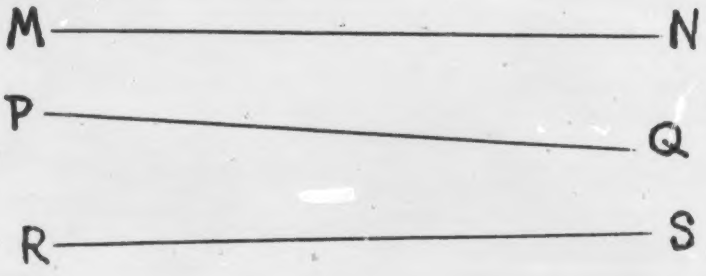




SIXTH ACTIVITY FOR SKILL B

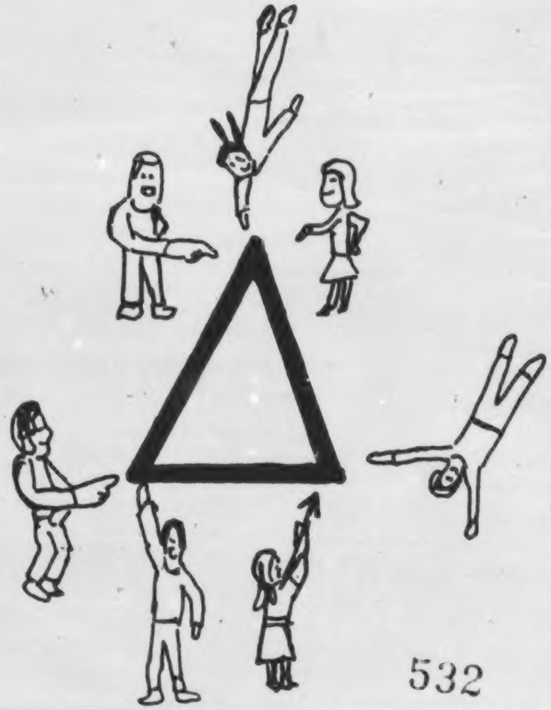
Show the children that a line segment can be named by letters placed at its endpoints. Divide the group into pairs, and give each pair a piece of string two or three feet long. The children will hold the string taut between them to form a line segment. Each child chooses a letter, and the pairs take turns naming their line segments with those letters.





SKILL C: To identify a triangle.

VOCABULARY: triangle
corner

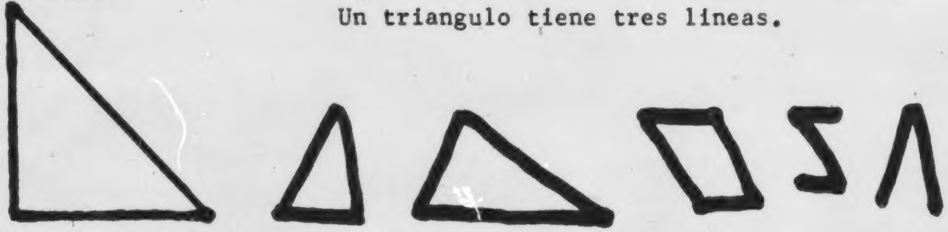


FIRST ACTIVITY FOR SKILL C	Introduce this geometric figure by asking: ¿Qué es esto? Tiene tres esquinas. Cuéntenlas. Draw a large triangle on the board. Have several children count its three corners.

SECOND
ACTIVITY
FOR
SKILL C

Write the following on the board:

Un triangulo tiene tres lineas.

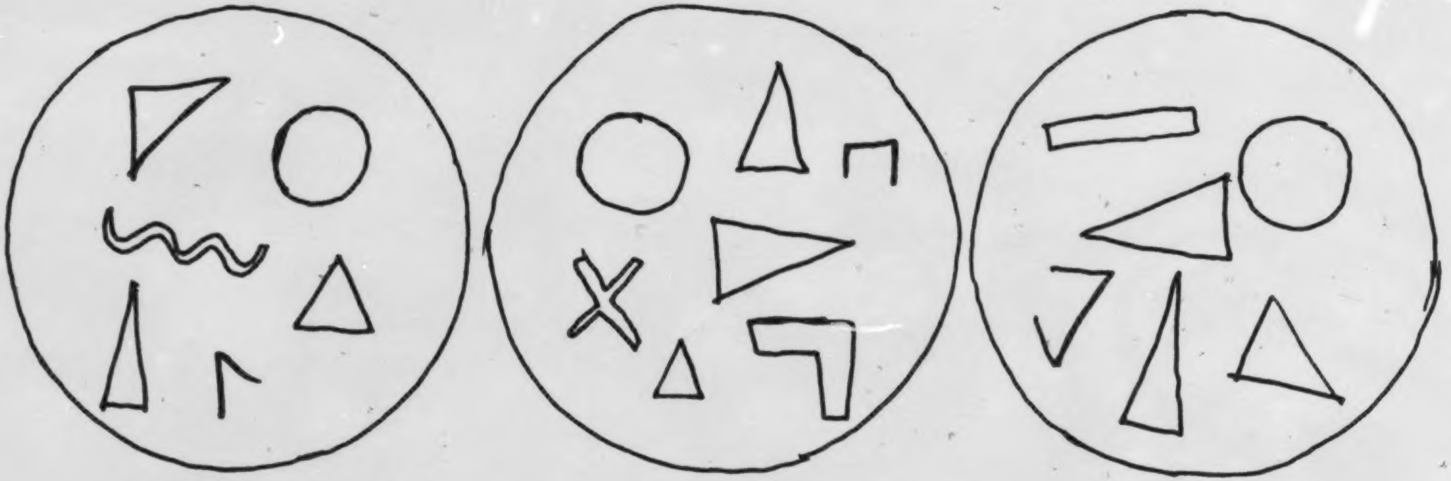


THIRD
ACTIVITY
FOR
SKILL C

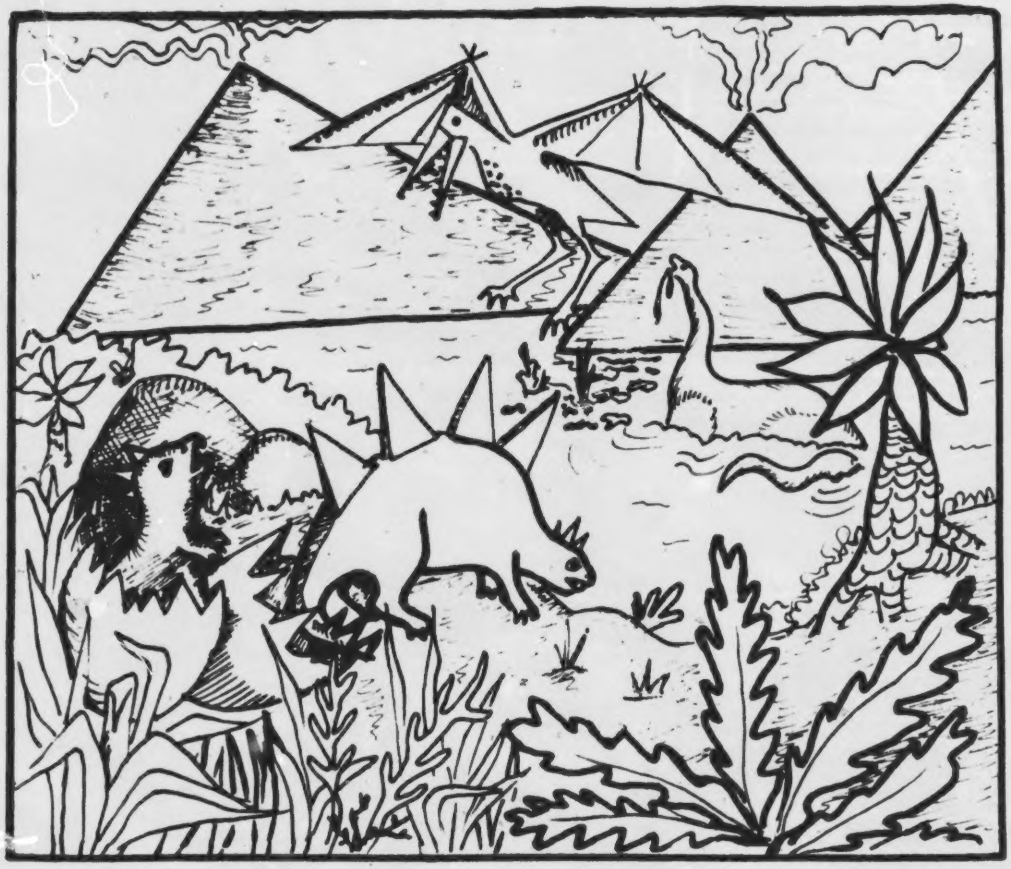
Draw three separate line segments on the board. ¿Qué son estas? Wait for children to respond that there are three line segments then draw a triangle. ¿Cuántas líneas tiene este triángulo? Aquí hay tres líneas, ¿por qué no son triángulo? Lead the children to discover that in a triangle the endpoints of the three line segments are joined. Point out three corner points. Draw more triangles on the board.

FOURTH ACTIVITY FOR SKILL C

Draw three groups of figures on the chalkboard. Include the same number of triangles in each group. Then divide the class into three teams. As in a relay race, the members of each team take turns going to the board. Each child is to ring one triangle. The first team to ring all the triangles in its group of figures wins the game.



FIFTH
ACTIVITY
FOR
SKILL C

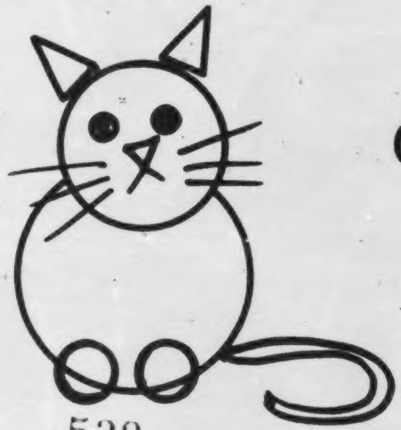


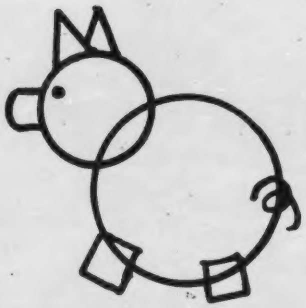
MARCA TODOS LOS TRIANGULOS

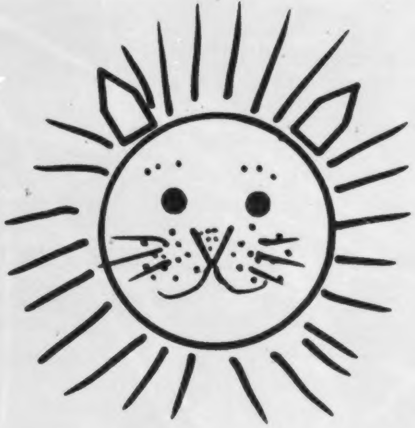
SIXTH ACTIVITY FOR SKILL C

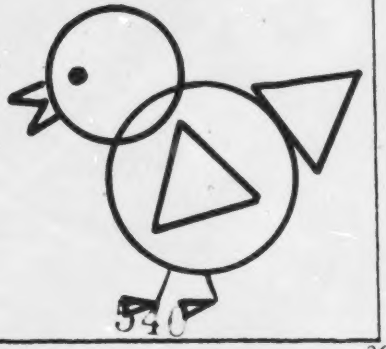
Help students make construction paper animals with geometric shapes for display around the classroom.

Examples:







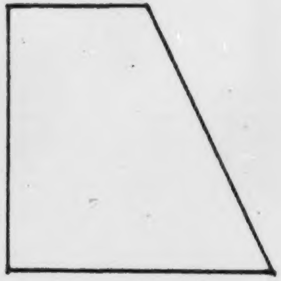


SKILL D: To identify a rectangle.

VOCABULARY: rectangle

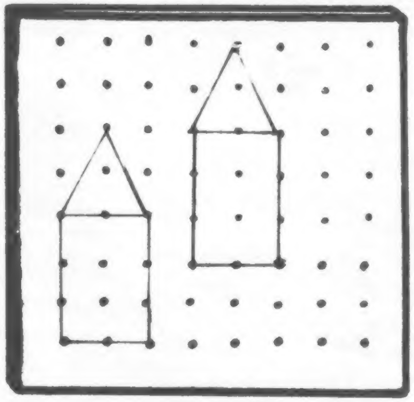
FIRST ACTIVITY FOR SKILL D

Draw a rectangle on the board and several a four sided figures that are not rectangles. Ask the children to talk about the differences between them. Point to the rectangle and introduce the word rectangle. ¿Cuántas lineas tiene el rectangulo?



SECOND
ACTIVITY
FOR
SKILL D

Have the children use individual geoboards to make rectangles and triangles.



GEOBOARD

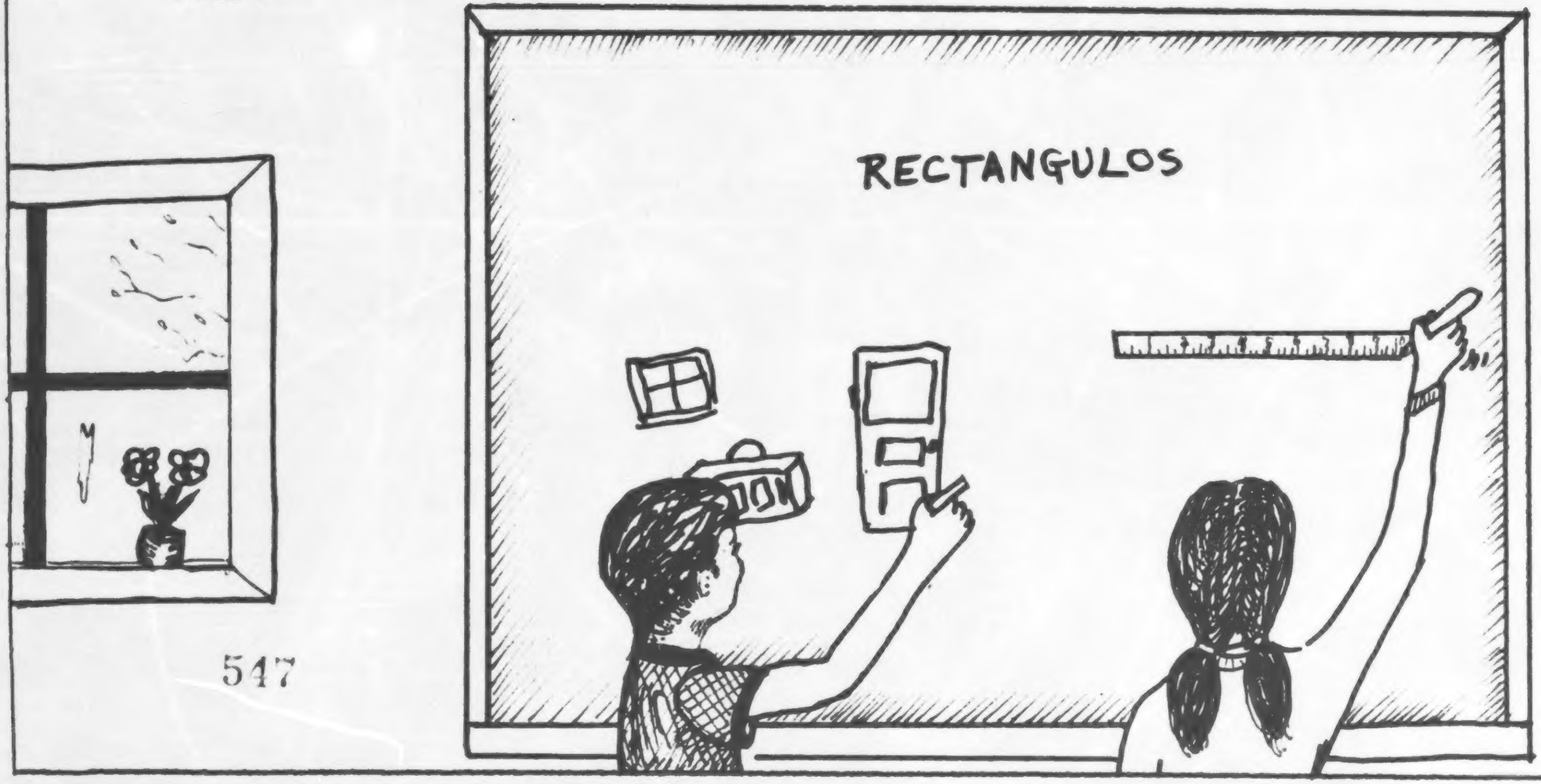
THIRD
ACTIVITY
FOR
SKILL D

Prepare the following worksheet with squares of dots resembling the top view of a geoboard. Ask the children to draw rectangles.

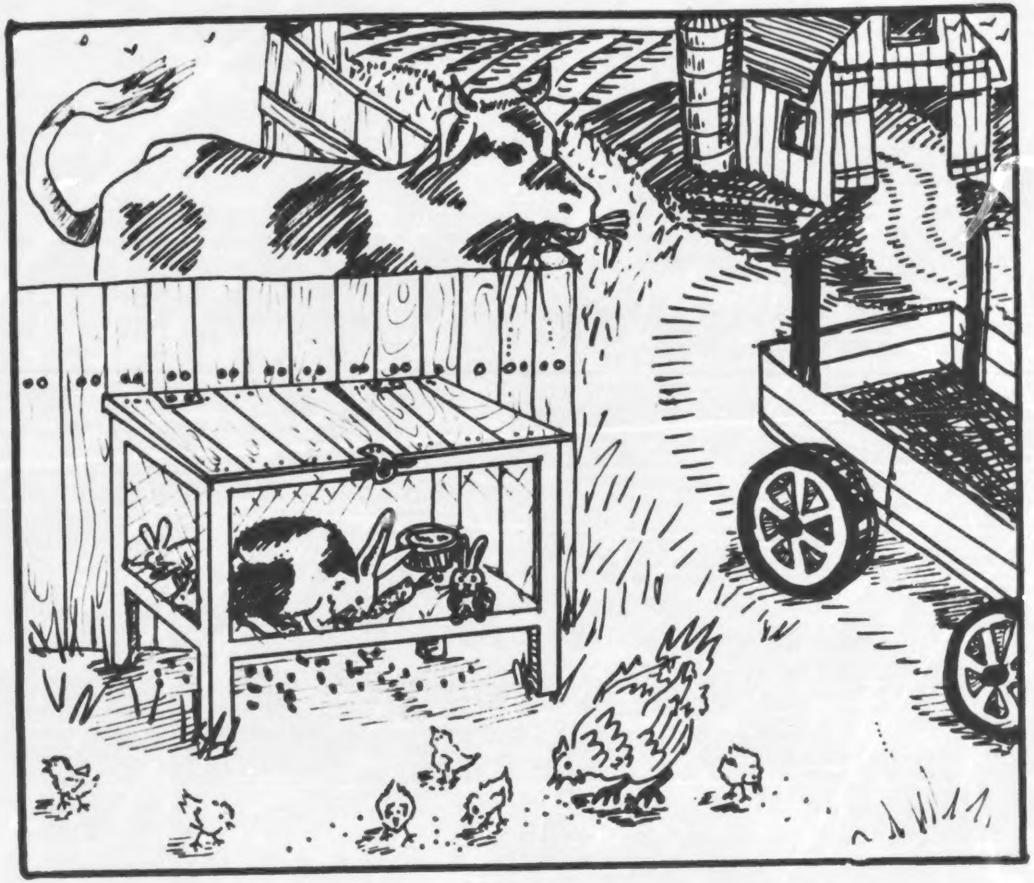
THIRD ACTIVITY FOR SKILL D

FIFTH ACTIVITY FOR SKILL D

Have the children look around the room for things that are shaped like a rectangle. Keep a record by drawing pictures of the rectangles they find. (See illustration).



SIXTH
ACTIVITY
FOR
SKILL D



549

550

MARCA TODOS LOS RECTANGULOS

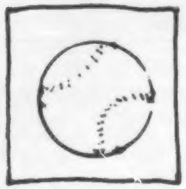
SKILL E: To identify a circle.

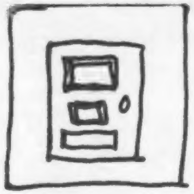
VOCABULARY:

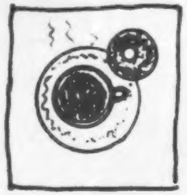
circle
circular

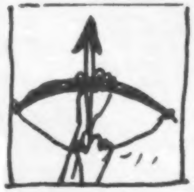
FIRST ACTIVITY FOR SKILL E

Make flashcards with one figure on each - a circle or a straight sided figure. Have the students identify those figures that are circles and those that are not.





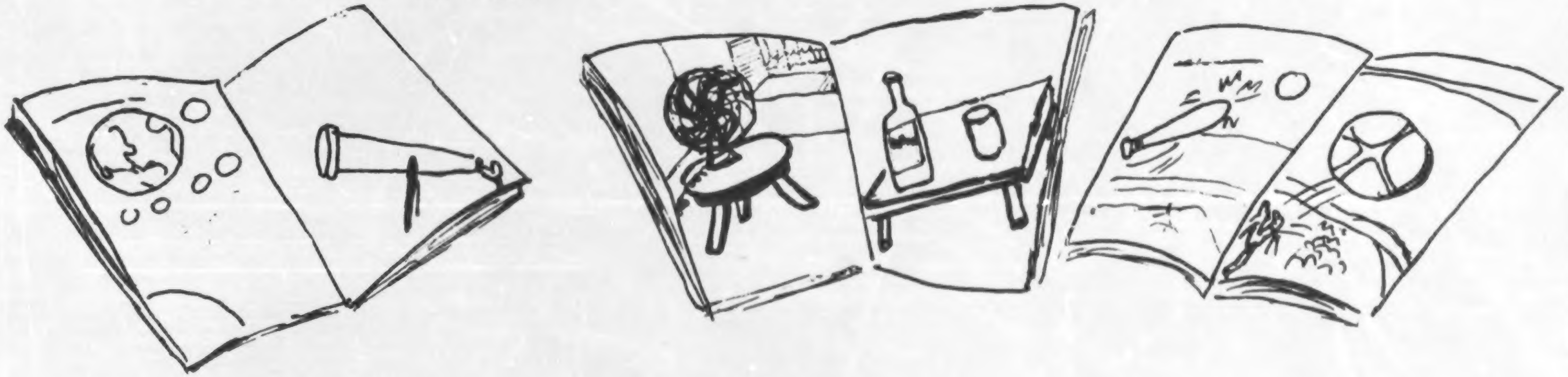




SECOND ACTIVITY FOR SKILL E

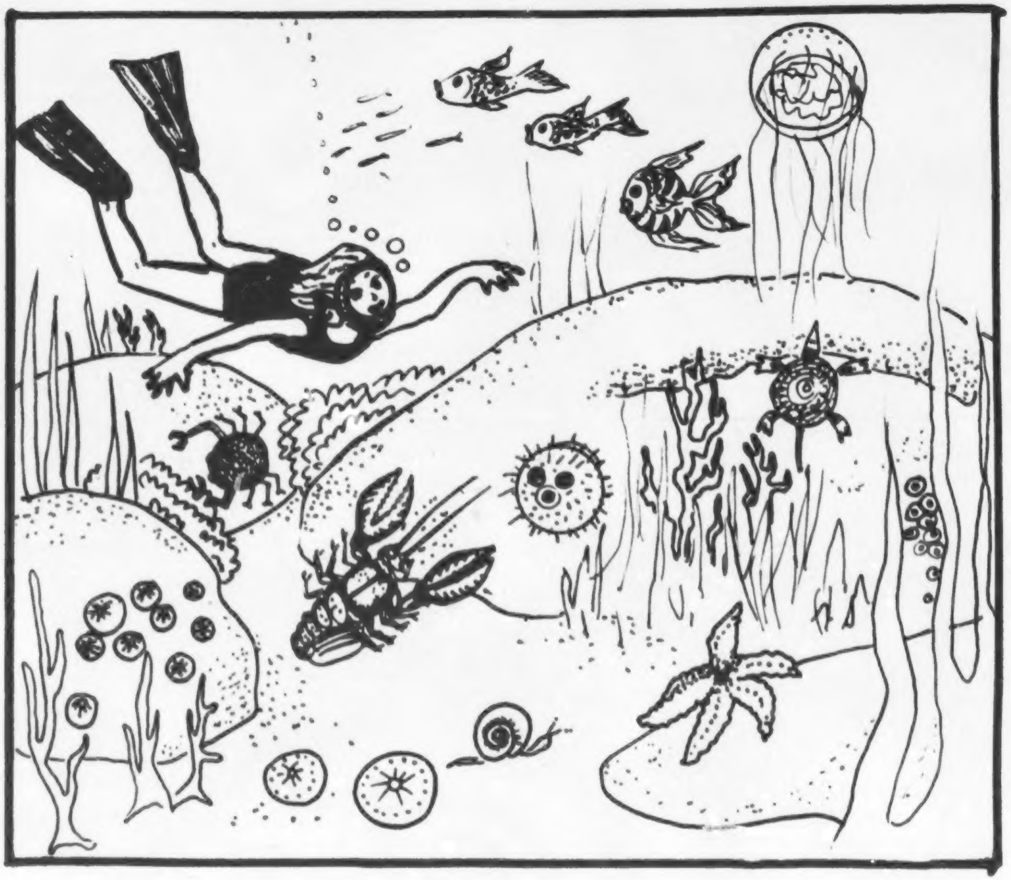
Hold up a drinking glass, and trace the rim of the glass with your finger. ¿Qué forma tiene este vaso? After you have discussed this briefly, show the bottom edge of the glass and ask the same question. Then move to the other objects in the room that have the shape of a circle, such as the clock face, the top and bottom edges of the waste basket, the rim of a circular container. Have the children take turns tracing the circular rims of objects with their fingers.

THIRD ACTIVITY FOR SKILL E	Have the children work together in small groups to look through old magazines for pictures of objects that are circular in shape. The children can then cut out either the circular shaped object or the entire picture. Have each group make a collage using several pictures and any other materials - rubber bands, string, colored yarn, paper cutouts - that are circular in shape. Display the collages on the bulletin board.



FOURTH ACTIVITY FOR SKILL E	Have the children make paper cut outs of the four geometric figures. Then have them work in small groups, showing their shapes to each other for identification.

FIFTH
ACTIVITY
FOR
SKILL E



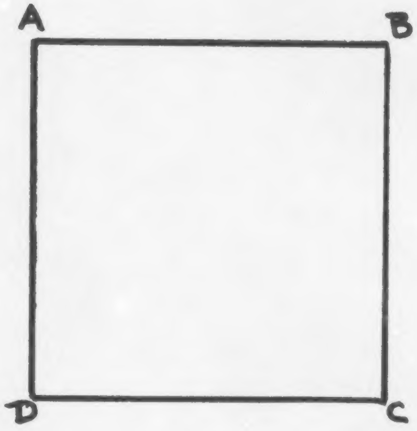
MARCA TODOS LOS CIRCULOS

SKILL F: To identify a square and distinguish it from a rectangle.

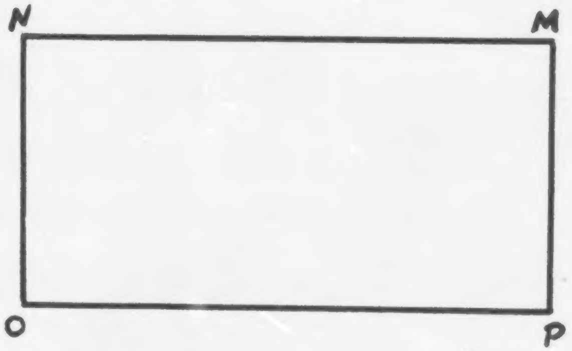
FIRST ACTIVITY FOR SKILL F	Ask the children to construct a rectangle on their geoboards or on worksheets. Then ask them to watch closely while you make a square on a demonstration geoboard. The students should observe that although both figures have four line segments for sides, all four sides of the square are the same length. Have the children make a square on their geoboards or worksheets.

SECOND
ACTIVITY
FOR
SKILL F

Draw a square on the board like this one. Call attention to the name - ABCD -. Point out that the letters begin with A and are named in clockwise order, and offer some practice as you discuss the figures shown .

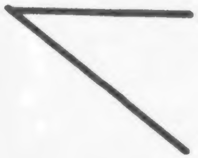
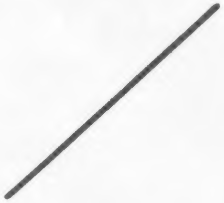
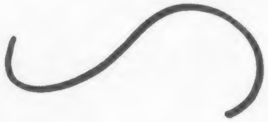
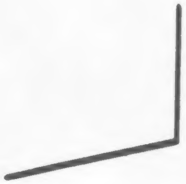
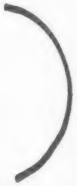


Caution the students that if they do not name the letters of a figure in order, either clockwise or counter clockwise, they are using an improper name.

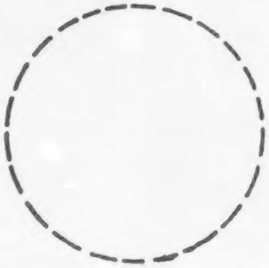
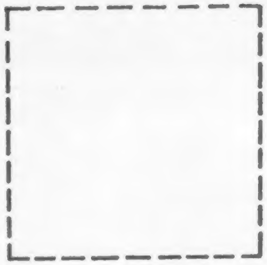
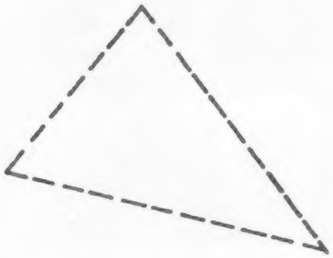
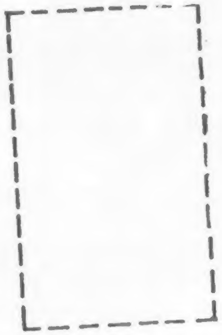


MASTERY TEST ITEMS

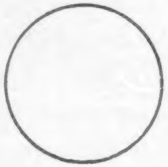
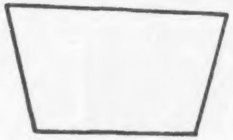
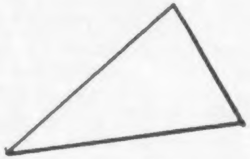
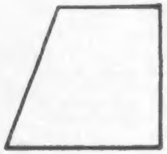
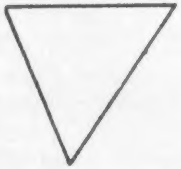
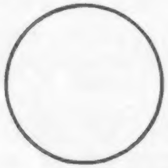
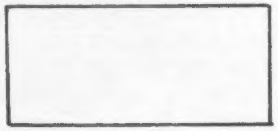
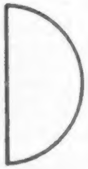
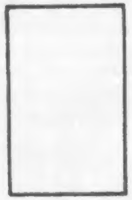
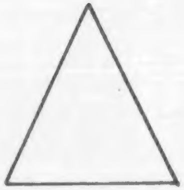
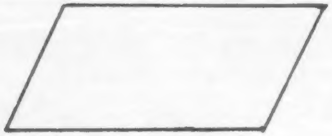
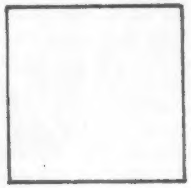
1. Marca todas las lineas rectas.

2. Trasa estas figuras.

3. Marca las figuras.

triángulo				
círculo				
cuadrado				
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